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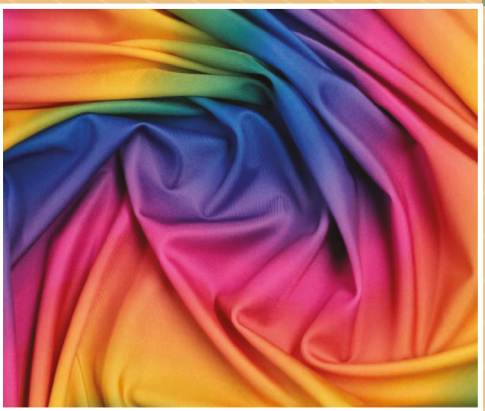

Encyclopaedic Dictionary of Textile Terms

Volume I

Mathews Kolanjikombil

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Preface

It has been told the first thing that a business man should know, is—the little things of his business. This book is meant for textile personae, be it a textile student, textile chemist, a spinner, a weaver, garment maker or a merchandiser who may be an expert in his/her field but he/she may come across many terms in his/her day to day business which he/she is not familiar with but is related to his/her field which he/she should know, but nine times out of ten does not know. He/She may not have an expert in that field of that term near him/her to clear his doubt about that term. This book comes handy in such circumstances.

There is nothing scholarly in this book, but is a compilation of short easy understandable meanings of the textile terms enough to help the referrer to understand the term. I have come across dictionaries which gives the meaning of the textile terms in one sentence. But it may not be sufficient to give a full idea about it. But this book is a little different. The meaning of the terms is explained in a concise manner even with the help of diagrams or photos, wherever necessary, which is enough to clear his/her doubts. These terms and meanings have been collected right from my college days and throughout my career. I believe it is not complete, but, such as it is, the compilation is reliable. There are further terms which are being collected by the author which will be added in the next edition, probably. The author believes that he has produced a book which may be profitably consulted by all who are either interested or practically engaged in textile trade.

It has to be specially mentioned that students can use the present book as a reference guide for his/her immediate needs without going to many textbooks. For detailed study of any terms he/she can further refer to books specialized in that field. I may not suggest this book for a research student. The author has also tried to explain the construction of many fabrics new or old for general knowledge.

Hope this book will be greatly accepted by textile personnel. Any suggestions or corrections are welcome, which will be included in the next editions.

Mathews Kolanjikombil

Senior Textile Processing Technologist

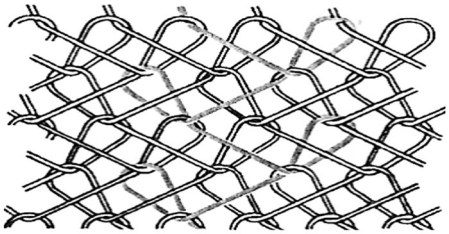
Bangalore

Dedication

This book is dedicated to my Father (Thomas Abraham) and my Mother (Thankamma Abraham) who solely made me what I am today.

A

2×1 Plain stitch in warp knitting: This stitch is the same as tricot stitch except that each yarn laps over to the next but one wale. [See **Warp knitting, Plain (Tricot stitch)]**.



2×1 Plain stitch

2×2 Rib (A weft knitted fabric): A wide range of fabrics can be produced, depending on the set-out of the needles. The most popular is 2 × 2 rib which is made by taking every third needle out of action in each needle bed (2 : 1 needle set-out). The two sides of the rib fabric look the same. If the fabric is stretched in the width, the two rib loops will be exposed between the two face loops. It is very elastic in the width direction. Applications include cuffs and welts, pullovers and dresses.

A la grecque: French name of the meander pattern.

A la reine: French silk droguet of different coloured warp and filling.

A.B.S. (ABS): A plastic; short form for acrylonitrile butadiene styrene. ABC material is an alternative to PVC.

A.B.C. Silk: A plain weave cotton/silk fabric with cotton warp and spun silk filing. Used for under wears and lining; it comes in white and plain colours.

AAFEBR: Anaerobic Attached Film Expanded Bed Reactor, i.e. an ***expanded bed biofilm reactor*** operated anaerobically.

Aachen felting test: Test for estimating the felting character of certain wool. The wool is made into the shape of a ball and immersed in felting solution and shaken for a predetermined period and then taken and dried. The measure of the ball dia compared to the earlier dia gives the felting character of that wool.

Aal: A red dye produced from the plant of the same name, related to the **madder.**

AAO process, A2O process: An adaptation of the A/O process. It is an activated sludge process that can achieve nitrification, denitrification and biological phosphorus removal as well as BOD removal. The three-stage process involves an anaerobic zone of about one hour retention followed by an anoxic zone of similar size, and finally an aerobic (oxidation) zone of 4–6 hours retention See also **Nitrification, Denitrification, A/O Process, Anoxic.**

AATCC: American Association of Textile Chemists and Colourists. Their website is www.aatcc.org. AATCC was founded to promote greater knowledge of textile dyes and chemicals, and therefore is concerned specifically with textile products. This organization works very closely with ASTM, but writes chemical-type tests. In addition to the development of test methods, AATCC sponsors scientific meetings and promotes textile education. The activities are concerned primarily with the chemical properties of textiles in contrast to ASTM's emphasis on physical properties.

AATCC fading unit (AFU): Unit for the evaluation of colour fastness to light. 20 AFU corresponds to the amount of light exposure necessary to bring about a perceptible change of shade on a specified AATCC Blue Wool LF Standard.

AATCC Blue Wool LF standard: One of a group of dyed wool fabrics distributed by AATCC for use in determining the amount of light exposure of specimens during light fastness testing.

Aba: (1) Coarse and thick, felted woollen fabric made of naturally coloured wool that is usually grey, made in Hungary, once worn by the peasants. (2) In some other countries it is a coarse fabric, made of wool and camel's hair, made in stripes.

Abaca: Manila hemp, alternative name for manila hemp called by natives in Philippines.

Abaiser: Ivory black.

Absinthe, absinth: The light-green colour of the potent liqueur of the same name which was banned in France in 1915 because of its effect on health and the performance of French troops at the beginning of World War I. It continues to be banned in France and in the United States, but is allowed in the United Kingdom where it continues to be imported since 1998. The liqueur takes on a milky colour when water is added.

Abassi: Raw cotton grown in Egypt, the staple is of good quality and white in colour, but not as strong as the other cottons.

Abat-chauvee: French word for a low grade of wool.

Abb: (1) Merino clothing warp wool, being skirting from the breech; (2) Short wool, taken from the breech and cow tail skirts of English and coarse wool, used mostly for warp; (3) Same as warp.

Abbotsford: The fabric is always slightly napped on one side, and could be made from cotton, wool, viscose, modal or acrylic, and of dress weight and usually made in muted check design.

Abdullah kani: Striped silks made in few counties.

Abee: Fabric made with cotton warp and woollen filling in Asia.

Abelmoschus: Fibre similar to jute; it is tough and does not rot in water and is used for making ropes.

Abercrombie: A Scottish tartan woven with a blue and black base and green and white over check. Traditionally all wool, but it may now contain a proportion of polyester or acrylic fibre. Used for kilts, pleated skirts, bias cut skirts, pinafore dresses and children's clothes. It is a medium–weight fabric, not usually heavy enough to be used as outer wear.

Aberdeen: Men's half hose made in Scotland of coarse grey wool.

Abeston: Incombustible flax of old Egypt, mentioned by Pliny.

Ablaque or pearl silk: A very fine raw silk from Persian counties which does not stand warm water, may not be in use now.

Abnakee rug: American hooked rug, which is made on a coarse and open jute burlap ground. Unbleached, all-wool, twilled flannel is dyed with vegetable dyes and cut lengthwise into strips of one-quarter inch width. These strips are hooked through the burlap to form the pile. The patterns are bold.

Abnormal crimp: A relative term for crimp that is either too low or too high in frequency and/or amplitude or that has been put into the fibre with improper angular characteristics.

ABNT: Associacao Brasileira de Normas Te'cnicas, Rio de Janeiro. Brazilian Technical Standards Association.

Abouchouchon: Low-grade French woollen, originally had 1,600 ends and black and white selvage.

Abraded yarn: A filament yarn in which the filament has been cut or broken to create hairiness (fibrillation) to simulate the surface character of the spun yarns. Abraded yarn is usually plied or twisted with other yarns before use.

Abrang: A fine violet striped fabric of cotton that is given a glazed finish, used to be made in India in olden days.

Abrasive wear (in carpet): Damage to carpet from foot traffic or other rubbing friction.

Abrasion: 'Wearing-off' of a textile material by rubbing against another surface.

Abrasion mark: An area where the fabric has been damaged by friction or rubbing. See **Chafe mark, Rub, Distortion**.

Abrasion resistance: The ability of the fibre or fabric to withstand surface wear and rubbing.

Abrasion tester: A mechanical instrument used for testing fabric resistance to destructive action of surface wear and rubbing. The best abrasion tests simulate surface wear and rubbing of the fabrics in actual use. Fabric may be tested for flat abrasion, flex abrasion and/or edge abrasion depending on the end use.

Abrawan: Next to the finest quality of the plain Dacca muslin.

Abrohany: Very sheer cotton muslin made in India. See **Mallemolles**.

Abroma hemp: Called also perennial Indian hemp, grows in the Philippine Islands, India, etc. The fibres are used for coarse cloth and for tow. See **Devil's cotton**.

Absolute: When referring to filters, it is used in reference to the micron rating of cartridge or disc filters, indicating that all particles larger than a specified size will be trapped within or on the filter and will not pass through.

Absolute alcohol: Water-free ethyl alcohol.

Absolute humidity: The mass of water vapour in a unit volume of air. See **Air humidity**.

Absolute system of measurement: Physical system of measurement.

Absolute temperature: See **Temperature**. Symbol: T A temperature defined by the relationship: T = c + 273.15 where c is the Celsius temperature. The absolute scale of temperature was a fundamental scale based on Charles' law applied to an ideal gas: $V = V_0(1 + áè)$ where V is the volume at temperature c, V_0 the volume at 0, and á the thermal expansivity of the gas. At low pressures, when real gases show ideal behaviour, á has the value 1/273.15. Therefore, at c = –273.15 the volume of the gas theoretically becomes zero. In practice, of course, substances become solids at these temperatures. Nevertheless, the extrapolation can be used to create a scale of temperature on which –273.15 degrees Celsius (°C) corresponds to zero (0°). This scale was also known as the ideal-gas scale; on it temperature interval units were called degrees absolute (°A) or degrees Kelvin (°K), and were equal in size to the Celsius

degree. It can be shown that the absolute temperature scale is identical to the thermodynamic temperature scale, on which the temperature interval unit is the kelvin.

Absolute white: In theory, a material that perfectly reflects all light energy at every visible wavelength. In practice, a solid white with known spectral reflectance data that is used as the "reference white" for all measurements of absolute reflectance. When calibrating a spectrophotometer, often a white ceramic plaque is measured and used as the absolute white reference.

Absolute zero: The zero value of thermodynamic temperature; 0 kelvin or –273.15 degrees Celsius.

Absolutely equivalent matching: A dyeing or matching whose reflectance curve is same or as close as possible over the entire visible spectrum to that of the original swatch/sample is called a an absolutely equivalent matching.

Adsorb: The process by which a liquid penetrates the solid structure of the absorbent's fibres or particles, which then swell in size to accommodate the liquid.

Absorb/absorption, in colour chemistry: Dissipation of the energy of electromagnetic waves into other forms (e.g., heat) as a result of its interaction with matter; a decrease in directional transmittance of incident radiation, resulting in a modification or conversion of the absorbed energy.

Absorbance: The ability of a substrate to transform radiant energy into a different form, usually with a rise in temperature. Mathematically, absorbance is the negative logarithm to the base of 10 of transmittance.

Absorbency: (1) See **Wettability;** (2) The ability of one material to take up another material.

Absorbent: The capacity of a substrate to take up liquid. In the case of textile fabrics, it can be a total of the adsorption within the fibre, adsorption or adhesion on the yarn surface or intercapillary absorption in between the yarn structure in a fabric.

Absorbent compound (in textile cleaning): Sponge like particles which, when saturated with water or dry solvent and detergent and brushed in to the textile, remove soil from the textile.

Absorbent pad (cleaning of textile floor covering): A damp textile material (fabric, sponge, felt or mop) used to agitate and wipe the pile and, in the process, absorb oil.

Absorption: A process in which a gas (the absorbate) is taken up by a liquid or solid (absorbent), or in which a liquid is taken up by a solid. For example,

absorption of moisture by fibres. In absorption, the substance absorbed goes into the bulk of the absorbing material. Solids that absorb gases or liquids often have a porous structure. The absorption of gases in solids is sometimes called sorption. Compare***adsorption***.

Absorption coefficient (K): See **Kubelka Munk**. The equation relates reflectance (R), absorption coefficient (K) and scattering coefficient (S).

$$2K^3 = (1 - R^2)$$

Absorption of dye (in dyeing): Absorption of dye from the dye liquor during the dyeing cycle. The absorption rate depends on the substrate and the dye; it normally takes a long time for the dye to exhaust from the dyebath.

Absorptiometer: Instrument for measuring the absorption of light similar to photometer.

Abudig: Medium fine-wool produced in Morocco.

Abutilon: Strong and glossy fibre, yielded by the abutilon species in tropical counties; used as hemp substitute for ropes.

Acacia: A greyish or greenish-yellow colour.

Acacia leucophloea: A coarse and strong bast fibre, a species of tree. Mainly used for ropes and nets before the introduction of synthetic fibres.

Academy blue: A mixture of **viridian** and **ultramarine**; a greenish-blue.

Acca: A rich mediaeval fabric made of silk, decorated with gold threads. Originally made at Acre, Syria. Used during the 14th century for church vestments and regal applications.

Acajou: A reddish-brown from the mahoganyof the same name.

Accelaerator: (1) A substance which accelerates a process. For example: Carrier which hastens the dyeing process of polyester.

(2) An instrument for making rapid laboratory determination of abrasion resistance and wear characteristics of fabrics such as pilling.

Accelarated aging (textile processing and testing): The use of controlled environmental conditions to promote rapid physical or chemical change in textile material.

Accelarated spinning performance: A method for evaluating spinning performance of a fibre, using small amount of fibre and reduced spinning time. End breakage is accentuated by spinning increasingly finer yarns or by varying yarn tension, spindle speed, yarn twist or other factors.

Accelerant: A chemical used to speed-up chemical or other processes.

Accelerated ageing: Use of controlled environmental conditions to promote rapid physical and/or chemical change in textile material. See also **Accelarated** in textile processing and testing.

Accent colours: Highlights; sharp colours.

Acceptable quality level (AQL): Standard value, under which acceptance sampling specifications are compiled into an acceptable sampling plan.

Acceptance number: The maximum for the number of defective units in a sample that test results may not exceed without concluding, at least tentatively, that the lot fails to meet the specification.

Acceptance quality level: The maximum fraction of defective that, for the purpose of acceptance, sampling can be considered satisfactory for the process average.

Acceptance sampling: Used for acceptance for testing of a bulk finished product mainly by taking random samples for testing the required quality parameters and accepting the bulk on that basis.

Acceptance sampling lot: See **Lot**.

Acceptance testing: Testing carried out to decide whether the material meets the requirements of acceptance.

Accidental colour: The *after-image* temporarily fixed on the retina, also referred to as 'subjective colour'. When the eye concentrates on one colour and then looks away, the *complementary colour* often appears as a false or accidental colour.

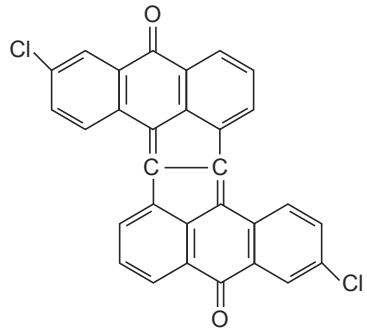
Accordion fabric: Itis single jersey with the long floats held in place on the technical back by tuck stitches. It was originally developed using knit and miss pattern wheel selection. Needles required to tuck (if not selected to knit) were provided with an extra butt, in line with a tuck cam placed immediately after the pattern wheel selection.

Accordion pleats: Narrow straight pleats usually parallel to one another. See **Pleats**.

Accumulation tank (ETP): A tank used to store water or waste-water.

Accuracy of a test method: The degree of agreement between the true value of the property being tested and the average of many observations made according to the test methods, preferentially by many observers.

Acedianthrone: This is an anthraquinone dye in the group of Derivatives of anthraquinone with a fused ring structure. The example is a dye produced by treatment of 2-chloroanthrone with glyoxal sulphate, fusion with alcoholic potassium hydroxide and treatment with sulphuric acid.



Vat red-brown RR

Acetate: See **Cellulose acetate**.

Acetate fibre: A manufactured fibre in which the fibre forming substance is cellulose acetate where not less than 92% of the hydroxyl groups are acetylated. The generic description of the fibre is triacetate. Acetate is manufactured from purified cellulose with acetic anhydride in the presence of a catalyst. It is then precipitated, purified, dried and dissolved in acetone into a highly viscous solution which is extruded through spinnerets into a column of warm air, is evaporated, leaving solid continuous filaments of cellulose acetate.

Acetate jersey: Knitted jersey fabric, plain or printed, made of acetate or triacetate fibre.

Acetate satin: Firm, medium weight satin made of acetate.

Acetic acid: An organic acid (CH_3COOH), widely used in textile applications. It is used in textile wet-processing, dyeing and printing, mainly for adjusting pH of a process including neutralisation, and in the manufacture of cellulose acetate and triacetate.

Acetic acid value: The percentage of weight of combined acetyl radical in any chemical is expressed as acetic acid.

Acetic anhydride: Anhydrous acetic acid [$(CH_3CO)_2O$] widely used in textile applications. It is used in the acetylation process in the manufacture of cellulose acetate.

Acetoacetanilide (C_6H_5-C=O-CH_2-$COCH_3$): Chemical which forms yellow pigments by reaction with diazotized m-nitro-para-toluidine, etc.

Acetone: Dimethyl ether (CH_3COCH_3). It is one of the most powerful solvents. Acetone dissolves secondary acetate and other cellulose derivatives. It is miscible with water and has a low boiling point 55–56°C.

Acetone recovery: It is the process of recovering solvent acetone from the acetate fibre or plastic manufacture. Usually recovery is done by adsorption by activated carbon and redistillation.

Acetyl: The radical CH_3CO- of acetic acid.

Acetyl cellulose: Cellulose acetate is sometimes wrongly described as *Acetyl Cellulose*.

Acetic acid value: The percentage of weight of combined acetyl radicals is expressed as acetic acid.

Acetylation: A chemical reaction whereby acetyl radical is introduced into a compound as in the conversion of cellulose to cellulose acetate.

Acetyl value: A measure of degree of esterification or combination of acetyl radicals with cellulose in acetate or triacetate products.

Aceytuni: Satin was originally known as aceytuni in ancient times.

ACFM: ACFM means actual cubic feet per minute. In air and gas streams, the ACFM is the actual flow. When corrected for pressure and temperature, ACFM can be correlated to SCFM (Standard Cubic Feet Per Minute).

Acherontic: Gloomy or dark. Derived from *Acheron* which according to Homer was one of the rivers of Hell – its water having a deathly foreboding appearance. 'Stygian' (in reference to the infernal River Styx of Greek mythology) has a similar meaning.

Achlorophyllaceous: Colourless.

Achromate: A person who is unable to detect colour.

Achromatic: Colourless object is known as achromatic.

Achromatic colour: A neutral colour that has no hue (white, grey or black).

Achromatic objectives: Optical objectives with compound lens systems having highest degree of correction for chromatic aberration.

Achromatic point: White point. Achromatic point is effective as the colour point of the lighting dependent physical ideal white.

Achromatistous: Colourless.

Achromobacterium: A genusof bacteria commonly found in activated sludge, trickling filters**,** denitrificationprocesses and anaerobic sludge digestion.

Achromatism: Colour blindness.

Achromatopsia, achromatopsy: The inability to see colours: a severe form of colour-blindness.

Achromatopsia: Total colour blindness.

Achromous: Colourless.

Acid: A chemical that will give a pH of less than 7 in water solution. In textile processing, many acids are used for various purposes. They include acetic acid, citric acid, hydrochloric acid, sulphuric acid, formic acid, etc. Several other compounds, such as sodium bisulphate, ammonium sulphate form acids in solution through hydrolysis.

Acid dew-point: Small amount of acids, particularly sulphuric acid, can raise the ***dew-point*** substantially. This can cause acid corrosion of components in air-pollution control devices, even though the temperature is well above 100°C.

Acid-drop yellow: A medium yellow.

Acid green: A bright green.

Acidic Hydrogen (Acid Hydrogen): A hydrogenatom in an acid that forms a positiveion when the acid dissociates. For instance, in methanoic acid

$$HCOOH \rightarrow H^+ + HCOO^-$$

the hydrogen atom on the carboxylate group is the acidic hydrogen (the onebound directly to the carbon atom does not dissociate).

Acid-washed: Describing fabric which has been bleached to give the appearance of being worn or faded; particularly denim used for jeans – referred to as 'distressed denim'. Similar results can be obtained by other processes to produce fashion items referred to as 'stonewashed', 'bleached', 'pre-washed' or having an 'antique look'.

Acid ager: Steamer used for fixing printed/dyed material using acid steaming.

Acid binding equivalent(Acid saturation value): It is the binding equivalent of acid dyes per unit weight of protein fibres (wool, silk) as well as polyamide fibres. It depends on the respective number of free amine group in the fibre mule available to form salts.

Acid chlorination, colour fastness: See **Colour fastness to acid chlorination**.

Acid content (of felt): The number of milli-equivalents of acid present per unit weight of felt, measured under prescribed conditions.

Acid damage to cellulose: See **Hydrocellulose**.

Acid degumming of silk; Alkaline degumming of silk: Silk degumming in aqueous solutions of acids and alkalis is greatly influenced by pH and temperature. An alkaline reaction at a pH > 9 and acid reaction at pH < 2.5 ensure a rapid elimination of sericin completely after 30 min of treatment.

The temperature should not exceed 95°C to avoid weakening of the fibre. The degree of hydrolysis of fibroin also depends on pH of the bath.

Acid desizing: In this method, cotton fabric is treated with dilute sulphuric acid with a concentration of 5–10 g/1 at a temperature of about 40°C for 3–4 h. Dilute acid attacks the polymer chain of starch and due to chain cleavage of starch molecule, short water-soluble or dispersible chain segments are formed. With sulphuric acid higher than 10 g/1 and above 50~ there is always the possibility of weakening the cloth or causing holes . The treated cloth must not be allowed to dry at all, otherwise degradation of cotton will occur at the dried area.

Acid discharges (discharge resists): Discharges based on acids and their salts like citric acid or tartaric acid.

Acid donor (resin finishing): Substances added in the resin finishing, which during the polymerization process is liberated and accelerates the cross-linking.

Acid donor: A compound that hydrolyses or breaks down to yield acid. In a number of dyeing and printing processes, primarily with acid dyes, there are advantages to starting with a bath or print paste that is pH neutral or only slightly acid, but that will become strongly acid as a result of the boiling or steaming process. Acid donors, such as ammonium sulphate or ammonium tartarate are often used for this purpose.

Acid dyeable variants: Polymers chemically modified to make them receptive to acid dyes.

Acid dyeable nylon: Nylon that can be dyed with acid dyes.

Acid dyes: An anionic dye having substantivity for fibres, which contains cationic group like polyamide, silk, etc. A large class of dyes that are applied from acidic medium to protein fibres. They are usually applied from strongly acid to neutral on wool, silk and nylon, usually at a temperature near to boiling or boiling. They give bright to dull shades and fastness from poor to excellent.

Acid dyes (aggregated): One group of acid dyes when classified as per their state in solution. The actual size of the dye particle in solution varies according to the degree of aggregation. These are fast milling dyes and are characterized by poor stability, turbidity of solution (particularly when cold), low capillary rise, capacity of staining vegetable fibres, and distinct affinity towards wool when dyed in neutral bath. They may be dyed with ammonium acetate, ammonium sulphate, acetic acid and even from a neutral dye bath. They have poor levelling properties but good fastness to wet-processing. Examples are Polar Yellow R, Coomassie Navy blur RNS.

Acid dyes (equalising): Acid dyes which level well, but have poor fastness to wet treatments. Sulphuric acid is incorporated into the dyebath.

Acid dyes (milling): (*Acid-dyeing*) Acid dyes have poorer levelling properties but have better fastness to wet treatments. They are applied using a weaker acid such as methanoic (formic) or ethanoic (acetic) acid, the acid chosen depending upon the substantivity of the dye.

Acid dyes (molecularly dispersed): One group of acid dyes when classified as per their state in solution. Such dyes are characterized by high solubility, cleanliness of solution, high capillary rise, lack of affinity for vegetable fibres and their poor affinity for wool in neutral dye liquor. They are dyed with sulphuric or formic acid in the dyebath. They are easily levelling and possess poor fastness to wet-processing. Examples are Xylene Light Yellow 2G, Acid Orange GG, Azo Geranine 2GS.

Acid dyes (super-milling): (*Milling acid dyes: neutral-dyeing*); these are sometimes referred to as *super-milling* acid dyes. Their levelling properties are poor, but their fastness to wet treatments is excellent.

Acid equivalent of protein and polyamide fibres: Binding equivalent of the acid dyes per unit weight of the protein fibres, such as wool, silk, polyamide, etc. Also called acid binding equivalent, acid saturation value.

Acid fading: Fading due to the dye-fibre bond breakage under acidic atmospheric conditions. More relevant in case of reactive dyes.

Acid hydrolysis: Hydrolysis of a chemical by the addition of an acid. For example, wastes high in cellulose (e.g. waste straw or paper) can be pulped in water. The addition of a strong acid and steam (to raise the temperature) hydrolyses the cellulose in the pulp into sugars, which can then be separated out and fermented into alcohol fuels.

Acid metal complex dyes: See **Metal complex dyes**.

Acid recovery: A reclamation process in chemical processing in which the acid is extracted from a raw material, by-product or waste product. For example: In the manufacture of cellulose acetate, acetic acid is a major by-product. The recovery process consists of collecting all wash liquor containing considerable acetic acid and concentrating it by suitable method to form glacial acetic acid.

Acid resistance: The property to withstand the contact or treatment with acid (type of acid being specified-organic or inorganic) normally encountered in use.

Acid salt (acidic salt): A salt in which there is only partial replacement of the acidic hydrogen of an acid by metal or other cations. For polybasic acids, the

formulae for such salts are of the type $NaHSO_4$ (sodium hydrogen sulphate) and $Na_3H(CO_3)_2.2H_2O$ (sodium sesquicarbonate). For monobasic acids such as HF the acid salts are of the form KHF_2 (potassium hydrogen difluoride). Although monobasic acid salts were at one time formulated as normal salts plus excess acid (i.e. KF.HF), it is preferable to treat them as hydrogen-bonded systems of the type K+(F–H–F)–.

Acid shock dyeing: A method of continuous dyeing of polyamide fabric using metal complex dyes. Fabric is first padded and heatset on stenter and afterwards fixed by shock treatment in a boiling bath containing 3ml/l of formic acid on jig or open width washing range.

Acid soaps: Sulphonated fatty acids (e.g., Castor oil) which is not fully neutralized.

Acid value: It is a measure of free acid content in oils, fats, waxes, etc. Estimated as the mg of pure potassium hydroxide required to neutralize 1 g of the material.

Acid yellow: A medium yellow acid dye.

Acid (colour fastness to): See **Colour fastness to acid spotting**.

Acid (strong): An acid which can virtually completely ionize in water is called strong acid. All of the acid which can be represented by HA, exists in solution as H^+ (or as $H_3O^–$ the hydrogen ion combines with a water molecule to form a hydronium ion) and A-. Hydrochloric and sulphuric acid are common strong acids. Note that even in weak solution these are still considered as strong acids.

Acid (weak): A weak acid is a one that does not fully ionize in solution. Few of the acids remain in molecular form, rather than completely ionizing. If HA represents the acid, few would remain in solution as HA, and few would ionize to H^+ and A^-. Acetic acid and citric acid are commonly used weak acids. An acid may be technically weak, but is still capable of causing serious skin burns. See **Acid (strong)** and **Base (weak)**.

Acidic: A term describing a material having a pH of less than 7.0 in water. Or having a tendency to release a proton or to accept an electron pair from a donor. In aqueous solutions, the pH is a measure of the acidity, i.e. an acidic solution is one in which the concentration of H_3O^+ exceeds that in pure water at the same temperature; i.e. the pH is lower than 7. A pH of 7 is regarded as being neutral.

Acidic washing: Washing/soaping of dyeings or printing in acid medium to improve wash fastness.

Acidimetry: Titration.

Acidity: Property of acid and acid salts, whereby hydrogen ion is liberated due to dissociation of radicals when dissolved in water. Acidity of a water is measured by hydrogen ion concentration, usually called **pH**. Waters with pH below 7.0 are acid. In unpolluted water, acidity comes from dissolved carbon dioxide or organic acids leached from the soil. Atmospheric pollution also may cause acidity. Acid waters can corrode metal or concrete. See **Alkalinity**.

Acidity (degree): pH is the measure of hydrogen of a molecule in water; hence, will give the degree of acidity of that solution. See **pH**.

Acidolysis: Acidolysis is the degradation of the molecule in presence of an acid. In polymers, the splitting of the bond of a high polymer weight polyamide takes place resulting into a low molecular acid as follows:

$$–NH–(CH_2)_{n1}–NH–CO–(CH_2)_{n2}–CO–)\ COOH–R–COOH \rightarrow$$

Polyamide Polymer

$$–NH–(CH_2)_{n1}–NH–CO–R–COOH + HOOC–(CH_2)_{n2}–CO–$$

Acier: Steel-coloured; grey.

ACIT: Association des Chimistes de l'Industie Textle (French Association of the Chemists of the Textile Industry).

ACIMIT: Italian Association of Textile Machinery Manufacturers.

Ackermann's Green: A yellowish-green.

Acme: Variety of raw cotton whose staple is fairly long, but is of inferior quality.

Acores: A variety of unbleached linen of various fineness produced in France.

Acorn brown: The brown colour of the acorn; also simply referred to as 'acorn'.

Acoustic pressure: It is the periodic pressure variation that occurs in the sound waves. Measured in pascals (p).

Acre-foot: The volume of water required to cover one acre of land by one foot of water. It is equal to 1233 m^3.

Acri: 'Raw' cotton from Syria.

Acramin dyeing process: Process by which the pigment colour is padded along with binder and catalysts and cured in suitable machine. Pigment dyeing can be done for pale and medium shades on cotton and sometimes blends where cotton may be the major component. Even though the handle is slightly inferior in pigment dyeing, now a days, processes and binders are available which can match the handle of normal dyeing. Presently, pigment

dyeing is more used for washing purposes. Here binder quantity is reduced, or partially cured, or not cured as per the washing off requirements, depth of shade or washing process adopted, etc.

Acridine yellow: A yellow coal-tar dye also used as an anti-bacterial agent.

Acritochromacy: Colourblindness.

Across shoulder (body measurements): The distance between the shoulder joint to shoulder joint across the back.

Across stitch: Embroidery stitch. Method: Bring the needle through on the lower right line of the cross and insert at the same line, taking a stitch through the fabric to lower left line. Continue to the end of the row in this way. Complete the other half of the cross. It is important that the upper half of each stitch lies in one direction. Thread should be under the needle point. Pull up the stitch to form a loop and repeat. This stitch may also be used on even-weave fabric.

Acrylic: The generic name of man-made fibres derived from polyacrylonitrile (min 85% acrylonirile units). Its chief properties are soft, woolly hand; wash and wear performance; brilliant and high shades of colours; good performance in carpeting; good wrinkle resistance. Acrylic is normally dyed with basic dyes.

Acrylic dyes: Dyes used for dyeing polyacrylonitrile fibre/yarn/fabric. They are mainly cationic dyes, disperse dyes (for pale shades) and acid dyes in certain cases.

Acrylic fibre: A manufactured fibre in which the fibre-forming substance is any long chain synthetic polymer composed of at least 85% by weight of acrylonitrile units [-CH_2-CH(CN)-] (FTC definition). Acrylic fibres are produced by two basic methods of spinning (extrusion), dry and wet. In the dry spinning method, material to be spun is dissolved is a solvent. After extrusion through the spinneret, the solvent is evaporated, producing continuous filaments which later may be cut into staple, if desired. In wet spinning, the spinning solution is extruded into a liquid coagulating bath to form filaments, which are drawn, dried, and processed. End uses of acrylic fibres include floor coverings, blankets, and apparel uses such as suiting, pile fabrics, coats, collars, linings, dresses, sweaters and shirts. Probably, the most popular synthetic fibre for yarns for hand knitting.

Acrylic jersey: A soft, warm, absorbent fabric, even warmer if the back is brushed or fleeced. Usually knitted in bright stripes as the right side is rather dull and unattractive if a plain colour is used. Used for leisure cloths, jogging suits, robes and dress gowns.

Acrylic knit: This covers a wide variety knitted fabric based on acrylic fibre but often containing small percentages of other fibres. Designs include fine and heavy ribs, lacy and crochet effects and open, often marled effect, marked effect, fabrics resembling hand knits.

Acrylic monomers: Acrylic monomers are used as finishing agents for cross linking on the fibre.

Acrylonitrile: Propene nitrile vinyl cyanide: CH_2= CH-CN. Raw material for the manufacture of Polyacrylonitrile.

Acrylic resin: Polyacrylate resins including their copolymers. See **Synthetic resins**.

Acrylic sheer: A heavy, rather stringy open-weave vision net for curtains, often in two-colour plain weave. All acrylic fibre is very soft and difficult to press, but a farmer net of this kind contains about 20% flax which improves its texture and handle. Others contain polyester which acts like scaffolding.

Acrylonitrile: A colourless, volatile, flammable liquid (CH_2= CHCN) used as a raw material in the manufacture of acrylic polymers and fibre.

Acetate: This is a manmade fibre which is not affected by moths or mildew; it is comfortable to wear and has very good draping properties. The fibre is inflammable, but many fabrics especially those made for furnishings have greatly reduced inflammability. Acetate is often mixed with other fibres including cotton, viscose and nylon producing very interesting textures and colourings. Woven and knitted fabrics are made for a wide variety of uses including dress fabrics, linings, ribbons, and furnishing materials.

Actinic degradation: See **Ultraviolet degradation**.

Actinic resistance: See **Ultraviolet resistance**.

Action stretch: A term applied for fabrics and garments that give and recover in both warp-wise and weft-wise. Action stretch is ideal for tight-fitting garments such as ski pants.

Activated alumina: Alumina (Al_2O_3) that has been treated to increase its surface area and thus to enhance its adsorptive properties. It can remove phosphate and arseniccompounds from liquid wastes and can dry gases.

Activated bio-filter: A high rate trickling filterusually followed by an aeration tank and always a sedimentation tank. Some of the sludge from the sedimentation tank is recycled to the filter. This enables a high concentration of biofilm growth in the filter and therefore the BOD loadings on the filter can be much higher than conventional design. This system may be used for a roughing filter giving about 60% removal of BOD.

Activated bio-solids: Another name for ***Activated sludge***.

Activated carbon: Amorphous form of carbon with porous internal structure having capacity to adsorb many gases, vapours and colloidal solids. Also used for decolourizing liquids and other adsorption purifications. Activated carbon is made from charcoal made from wood, peat, etc., by treatment of the charcoal with steam at 900°C, or by with phosphoric acid at 600°C, or in some other way to increase its porosity and its surface area. Its large surface area per unit mass (up to 1400m^2/g) enables it to adsorb trace organics and other undesirable components of a water intended for drinking, or from a malodorous air. It is expensive. It can be used in water treatment as a filter of granular activated carbon (GAC) in an activated carbon filter. Alternatively it may be added as powdered activated carbon (PAC) into the water, after which it is removed by filtration. GAC is larger than 100 um; whereas, PAC is usually less than 50um. Activated carbon can be used in air-pollution control to remove toxic organics fromgaseous effluents, such as incinerator waste gases. Activated carbon is widely used for odour control, with the odorous gas being passed through beds of GAC.

Activated carbon bed: An activated carbon filter.

Activated carbon filter, carbon adsorption bed, GAC filter: A tank used in water (or possibly wastewater) treatment, containing 1–9 m depth of granular activated carbon (GAC) through which water flows, usually as a downward flow filter, but possibly as an upflow or moving bed filter. The filter can be used to remove trace organics (e.g. pesticides) from water. The beds filter out suspended solids and so they may need backwashingpreceded with air scouring. The bed or filter may be designed for surface loading ratesof 100 to 600$m^3m^{-2}d^{-1}$. The spent activated carbon is removed from the bed or filtered and regenerated by the same process as newly manufactured activated carbon. GAC filters can be used in air-pollution control to remove toxic organics from gaseous effluents, such as incinerator waste gases. GAC filters are also used for odour control, with the odorous gas being passed through beds of GAC. GAC on which microbes are grown is known as biological activated carbon. The microbes enhance the treatment of the water or wastewater or gas.

Activated carbon in dyeing and printing: Used as an addition to wash baths when washing of dyeing or prints to prevent staining of grounds by re-depositing.

Activated carbon in waste-water treatment: Activated carbons are used as an adsorptive agent in many stages of waste-water treatment.

Activated clay: An adsorbent clay that removes colour, odour, free fatty acids, etc., from oils and tallows.

Activated oxygen bleach: A bleaching system comprising of an oxygen bleach and a bleach activator.

Activated sludge: A biomass made by continuous recirculation of the sludge from the secondary sedimentation tankto the aeration tank, thus acquiring many active aerobic bacteria, from 100 to 1000 million per millilitre of mixed liquor. The bacteria are embedded in or on a slime that forms 90% of the solids content of the sludge. The slime, mainly polysaccharides, is produced by the bacteria as they consume the BOD. Protozoa, especially ciliate protozoa, mayalso be present in the sludge, feeding on the bacteria.

Activated sludge process: A continuous, aerobic biological treatment for waste-water dating from 1913 that uses a culture of bacteria suspended in the waste-water in an aeration tank to adsorb, absorb and biodegrade the organic pollutants. Flocsare formed that may reach 0.1 mm in diameter in the aeration tank. These are kept in suspension either by air blown into the bottom of the tank (diffused air system) or by mechanical aeration. The mixture of the activated sludge and the waste-water in the aeration tank is known as the mixed liquor. The concentration of mixed liquor is known as mixed liquor suspended solids (MLSS), but is also measured as mixed liquor volatile suspended solids (MLVSS). The mixed liquor flows from the aeration tank to a sedimentation tank, where the activated sludge flocs combine together into larger particles that settle as a sludge. Most of the sludge from the sedimentation tank returns to the aeration tank. The dissolved oxygen in the aeration tank should be at least 0.5 mg/l, preferably 1–2 mg/l. The aeration tank may be designed on aeration period, preferably on F : M ratio or mean cell residence time. If the ammonia present is to be oxidised to nitrate, the plant must be designed for nitrification. In municipal waste-water, the activated sludge process is usually preceded by primary sedimentation. In the start-up of an activated sludge plant, the time needed for establishing the appropriate bacteria and protozoa can be greatly reduced by seedingthe new aeration tank with sludge from one that is working well. Activated sludge treatment demands only about one seventh of the land occupied by trickling filters. It also does not suffer from filterfliesand has little smell. The operating cost of the aeration tank can be high and skilled attention is essential. Many varieties of activated sludge treatment exist, including contact stabilisation,extended aeration, modified aeration, oxygen activated sludge.

Activation energy: Generally, the heat that is required to make a chemical reaction go. An “energy barrier” has to be overcome before a starting material can be converted into a product. The height of the barrier is directly proportional to the rate of the reaction.

Active bleach: See **Available chlorine**.

Active carbon: See **Activated carbon**.

Active content: A measure of the active matter in a solution or emulsion of textile auxiliaries. It is the percentage of the active matter of a pure substance or auxiliary, which is supplied in the diluted form in water, solvent, etc., calculated on the basis of the weight of the auxiliary.

Active earths: See **Bleaching earths**.

Active oxygen or nascent oxygen: Oxygen in the formative stage, i.e. at the moment of decomposition, once believed to be responsible to the bleaching action/decolourisation during the bleaching processes.

Active substances: A group of highly active chemical compounds which are essential to life through their control functions in organisms.

Active toxicity: A toxicity, exposure of which will result in significant response on living beings/humans shortly after exposure (typically a response is observed within 48–96 h).

Active wear: Functional clothing, for active wear and sports activities.

Activity coefficient: The activity coefficient can be estimated using the following expression, derived from the Debye-Huckel theory and known as the Gutenberg approximation

$$\text{Log } r = 0.5(Z_i)^2.I^{1/2}/(1+ I^{1/2})$$

Where Z_i = charge in the i^{th} ionic species

I = Ionic strength

Activity (of an antibacterial agent): A measure of effectiveness of the anti-bacterial agent.

Activity (of anti-dust mite agent): A measure of the effectiveness of the anti-dust mite agent.

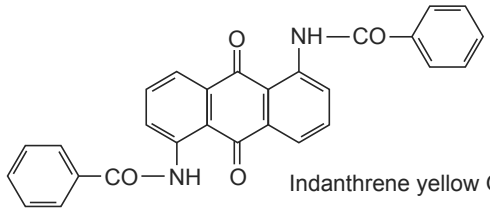
Acrylic sheer: A heavy, rather stringy open-weave vision net for curtains, often in two-colour plain weave. All acrylic fibre is very soft and difficult to press, but a firmer net of this kind contains about 20% flax which improves its texture and handle. Others contain polyester which acts like scaffolding.

Actual blend ratio: Ratio of the different fibres in a textile material determined by analysis.

Actual calorific value: The calorific energy that is released by the combustion of a defined quantity of a material under specified test conditions. Also called *Heat release*.

Acute toxicity: A toxic effect that has clear symptoms that occur rapidly after the exposure to the toxic substance. Acute toxicity can be measured by median lethal concentration or dose.

Acylaminoanthraquinone: Dye-class derived from anthraquinone and chain-substituted and chain-linked anthraquinone derivatives. Can be manufactured by the condensation of 1,5-diaminoanthraquinone with benzoyl chloride.



Indanthrene yellow GK

Acyanoblepsia: The inability to see the colour blue.

Acyl polyglycolethers: See **Polyglycolethers**.

Acylcellulose: Acyl substituted cellulose; e.g., Cellulose esters.

Adad: Fibres yielded by the *Ficaria ranucuioides*, a creeper in the Marshall Islands; used for clothing mats by the natives.

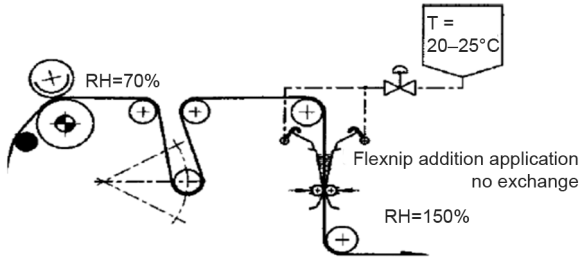
Adam blue: A greenish-blue.

Adapangia: Trade name for Indian raw silk.

Adarsa: A fine muslin made in India.

Adatais or addatis: Fine cotton muslin from India; the best grades are from Bengal.

Addition high-wet pick-up: A process in which damp cloth (from a preliminary washing range) is squeezed out and run through a highly specialized high wetpick-up unit without liquor.



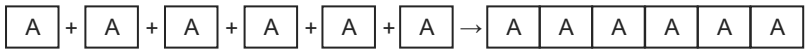
Addition pick up in the flexinip system by Kusters

This is obtained by using a very low liquor bath and rapid continuous liquor replenishing.

Addition mercerization: A cost effective mercerization process where scoured fabric with 50–70% moisture (avoiding a drying process thereby saving energy) is fed to a caustic soda bath of about 300g/l NaOH (30°C)

for mercerization process. Many squeeze points, addition of wetting agents, temperature, viscosity of the mercerizing liquor, absorbency of the fabric to be mercerized and the dwell time for the process ensures proper and even mercerisation.

Addition polymerisation: Polymerization process in which participating components are joined together due to trans-molecular rearrangements caused by shifting of hydrogen atoms to form high molecular synthetic compounds. The molecular weight of a polymer so formed is a simple sum of the molecular weights of the combined molecular units. This occurs when small molecules join together under the stimulus of a catalyst, heat or radiation to form a linear polymer usually without the elimination of a small molecule.



Schematic representation of addition polymerisation

This can be of the following three types:

(a) *Free radical addition polymerization*: In this type, chains are initiated by a free-radical such as phenyl.

(b) *Cationic addition polymerization*: The active species which initiates the addition polymerization is a cation such as a proton.

(c) *Anionic addition polymerization*: The initiating species in this case is an anion such as NH~-). See **Addition polymers**.

Addition polymers: When the monomer units are repeatedly added to form long chains without the elimination of any by-product molecules, the product formed is called addition polymer, and the process involved is called addition polymerisation. The monomer units are unsaturated compounds and are usually of alkenes. The molecular formula and hence the molecular mass of the addition polymer is an integral multiple of that of the monomer units. A few examples of addition polymerisation are:

(i) $n CH_2 = CH_2 \rightarrow (–CH_2–CH_2–)n$
Ethylene Polyethylene or Polyethene

(ii) $n CH_2 = CHCl \rightarrow (–CH_2–CHCl–)n$
Vinyl chloride Polyvinyl chloride(PVC)

(iii) $n CH_2 = CHCH_3 \rightarrow (–CH_2–CHCH_3–)n$
Propylene Polypropylene

(iv) $n CH_2 = CHCN \rightarrow (–CH_2–CHCN)n$
Acrylonitrile Orlon

Addition test: A test for assessing the levelling behaviour of the dye, by actually giving an addition in the dyeing bath itself and then evaluating.

Addition (in dyeing): A term used to describe each corrective addition of dye(s) made during the course of dyeing which is needed to achieve the closest possible colour match to a given colour standard or pattern.

Additive: A supplementary material combined with a base material to provide special properties. For example, pigments are used as dope additives to give colour in mass dyeing.

Additive colour: A mixture of coloured lights. The three primary colours of red, green and blue, when mixed together in equal proportions, produce white light. Mixing the three additive primaries in differing amount can create any colour in the rain bow. Colour televisions use the principle of additive colour mixing.

Additive primaries: Red, green and blue light. When all three additive primaries are combined at 100% intensity, white light is produced. When these three are combined atvarying intensities, a gamut of different colours are produced. Combining two primaries at 100% produces a subtractive primary, either cyan, magenta or yellow:

100% red + 100% green = yellow

100% red + 100% blue = magenta

See **Subtractive primaries**.

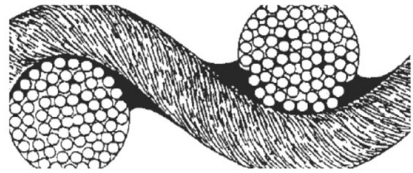
Add-on: The weight of solids left on a given weight of fabric after impregnation and drying. The percentage add on is given by (w1-w) × 100/w; where w is the weight of the fabric impregnated and w1 is the weight of the fabric after impregnation and drying.

Adduct: (1) An addition product, e.g. an ethylene oxide formed from which substituted polyglycolether are formed.

(2) An unstable compound formed in between the dyes and levelling agents which, after a long time of dyeing, gradually breaks down partially or completely, there by achieving slow exhaustion of the dye and improved levelling.

Adenos: One of the best variety of cotton; it is also the name of a cotton fabric made in Syria.

Adhered water: Superficially loosely adhered water, mainly yarn and fabric interstices.



Water collects at the intersection of the warp and weft and is so tightly bound that it cannot be removed as easily as other surface water. When fabric is passed through a washing range, a layer of adhered water is formed directly on the surface of the fabric which forms an obstruction to the diffusion of dissolved soil. Only a vigorous flushing will disturb the lamellar film boundaries.

Adhesion: The force that holds different materials together at their interface and resists separation into two layers.

Adhesion, in tyre fabrics: The force required to separate a textile material from the rubber or other elastomer by a definite prescribed method.

Adhesion energy: Potential energy, at a steady temperature, released when a free liquid surface in the separation of two phases (liquid/solid) to cause an increase in free energy.

Adhesion promoters: Chemical which facilitates adhesion. These products help the smooth fibre-face of closely constructed base fabric to provide a chemical bonding site for subsequent coating. Products containing the isocyanate group are the most widely used promoters.

Adhesive activated yarns: Yarns which are having adhesive property induced during the manufacturing process itself so that to promote better adhesion to another material such as rubber and/or to allow easier processing.

Adhesive bonded non-woven fabrics: Fabrics which are produced by sticking a knop yarn or fibre on to a textile or plastic substrate.

Adhesive bonded pile coverings: Pile coverings made by laying and sticking the fibre web on to a prefabricated woven base fabric, resulting in a continuous rib structure. These ribs are sheared to give velour like appearance.

Adhesive bonded cloque: Fabric produced by sticking two woven fabrics together by applying adhesive and then laminating, one being shrunk and the other without shrinking. Subsequently, the fabric is treated with hot water or alkaline creping bath, the unshrunk layer shrinks while giving a crepe effect.

Adhesive migration: In non-woven, the movement of adhesive together with its carrier solvent in a fabric during drying, giving it a non-uniform distribution with the web usually increase to the outer layer.

Adhesive lamination: Laminating process for applying a foam material film to a textile material.

Adhesive strength or peel strength (in carpet): Measure of bond of adhesive to a surface.

Adhesives: In textiles, material which cause fibres, yarn, or fabric to stick together or to other materials.

Adhi: An Indian term for light weight fabric in plain weave. It is used as shirting in tropical countries and also as the ground fabric for ***Chikan, Kamadani***, etc.

Adia: Good quality bleached cotton cloth in Persian/gulf counties.

Adipic acid: Acid used for the manufacture of 6,6 polyamide and 1,6 diaminohexane, akyde resins and esters used as plasticisers. It is 1,4 butanedicarboxylic acid also called hexanedioic acid. $HOOC-(CH_2)_4-COOH$.

Adipic acid fibres: Polyamide fibres of the polyamide 6,6 type, produced from adipic acid and 1,6 diaminohexane (hexamethylene diamine) are also called as adipic acid fibres.

Adire: The name given by Nigerian people (Yoruba tribe) to the patterns created by reserve Africa print techniques on cotton fabrics using Indigo.

Adire "oniko": It is tie-and-die technique.

Adire "eleso": It is a technique in which plant seeds, fruit capsules, shells or stones are incorporated in the damp cloths and used for producing circular and star shaped patterns on dyed/printed fabrics.

Adire "alabere": It is a technique which employs basting and whip stitches to produce reserve patterns.

Adire "eloko": It is an African variant of the Indonesian batik technique. Instead of wax, a reserving agent "eko" is produced in the form of a paste from rice or cassava starch. The paste is applied on the surface of the fabric without any crack while drying to avoid forming indistinct lines due to the cracks as against the batik technique.

ADR: American Dyestuff Reporter.

Adjacent colours: Colours which are next to each other on the ***colour wheel***or on a painting or design, etc. The placement of two colours next to each other often results in both hues taking on a different appearance so that, to take one example, red next to yellow makes the red turn towards purple and the yellow appear green.

Adjacent fabric: Undyed RFD (ready for dyeing) fabric composed of one or several types of fibres used in the fastness tests to determine the degree of staining from a dyed or printed test specimen.

Admix: The medium that is added directly in to the batch tank of pre-coat to create a permeable filter cake. Usually used in place of body feed.

Adobe: Pinkish-red; probably so called after the sun-dried bricks of the same name used in Latin American countries; also 'adobe red'.

Adras: A glossy union fabric, half silk and half cotton, usually made with narrow stripes and a beetled finish, made in Asia.

Adrianople red: A red colour also called ***Turkey red***.

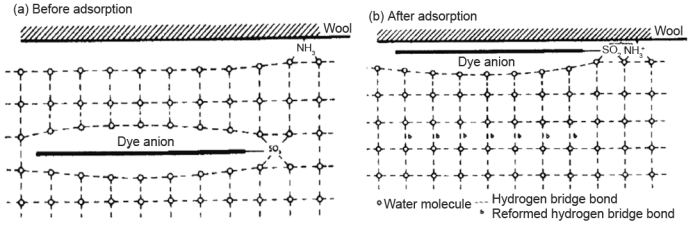
Adrianople twill: French name, synonymous with ***Turkey red*** twill.

Adsorbant substances: See **Adsorption**.

Adsorbate: See **Adsorption**. A substance that is adsorbed on a surface.

Adsorbent: See **Adsorption**. The substance on whose surface adsorption takes place.

Adsorption: A process in which a layer of atoms or molecules of one substance (adsorbate) forms on the surface of a solid or liquid (adsorbant). All solid surfaces take up layers of gas from the surrounding atmosphere. The adsorbed layer may be held by chemical bonds (chemisorption) or by weaker Van Der Waal's forces (physisorption). Taking up of a soluble substance (adsorbate) onto a solid body (adsorbant). Examples are dissolved substances on to fibres, moisture on to machine parts, gases on to solid bodies, etc.



Schematic representation of dye adsorption on wool

Adularescent: Bluish. According to *Stormonth's English Dictionary* 1884 – having the whitish sheen of moonstone found on Mount Adula in Switzerland.

Adumbral: Shadowy.

Adumbration: Shading.

Adust: A scorched brown colour.

Advanced composite: Polymer, resin or other matrix material in which reinforcement is accomplished via high strength, high modulus materials in continuous filament form or in discontinuous form such as staple fibres, fibrets and in-situ dispersions. See also **Composite**.

Advancing colours: Colours in the range of yellow to red which when applied to a surface make it appear more prominent or as if it is advancing towards the viewer. See also **Receding colours**.

Aea: 'Native' Hawaiian name for cord, made of the bark of the aleurites tree.

AECC: Asociacion Espanola para el Control de la Calidad, Madrid (Spanish Quality Control Association).

AEK: Fastness Committee of AATCC.

Aene- (L): Bronze.

Aeneous: Having the colour or lustre of brass.

Aeolian: A warp rib dress material made of cotton warp and silk, man-made fibre or worsted weft. The cloth is light in weight, has a glossy finish and is piece dyed.

AEQCT: Asociacion Espanola de Quimicos y Coloristas Textiles (Spanish Association of Textile Chemists and Colourists).

Aeration: The process of adding air to a water supply for the purpose of oxidizing or mixing.

Aere: Woollen yarn fabric with a tweed-like character and a marked crocheted open-work pattern effect.

Aerobic bacteria: Microorganisms which especially thrive on atmospheric oxygen, so called aerobes are called aerobic bacteria. Opposite term ***Anaerobic bacteria***.

Aerobic degradation: Degradation of dissolved matter or solid matter into other compound by aerobic bacteria. In this process, the organic substrates are oxidized and the energy released is used for the reproduction of the microorganisms.

Aerobic denitrification: See **Anoxic denitrification**.

Aerobic digestion: The breaking down of complex organic material into simpler compounds by aerobiosisas in an aerobic digesteror in composting.

Aerobic process in effluent treatment: They are biological treatment processes that occur in the presence of oxygen. Certain bacteria that can survive only in the presence of dissolved oxygenand are known as obligate aerobes.

Aerophane: Thin, solid-coloured silk gauze, used as millinery and dress trimming.

Aerosols: Liquid droplets or solid particles dispersed in air or gases of fine enough particle size (0.01–100μm) to remain so dispersed for a period of time. Generally removed by coalescing fibres.

Aerosol dyeing: In this method of dyeing the dyes are applied to a textile material in the form of an aerosol composed of air, dye and water vapour.

Aertex: Trade name for a British cotton cellular cloth; it is cool, absorbent and comfortable. Used for making underwear, sports cloths and shirts.

Aeruginous: Having the colour of ***verdigris*** or copper-rust.

Aesthetics: In textiles, properties perceived by touch and sight, such as hand colour, lustre, drape and texture of fabrics or garments.

Aesthetics (in sewing): Refers to the appearance of the thread in the finished seam that can be effected by contrast stitching, colour matching and the sheen of the thread or the size of the thread.

Aethio, aetho, aethrio (G): Bright, fiery.

Aetzstickerei: German term for burned embroidery. The pattern is embroidered in vegetable fibreand on animal fibre foundation, or vice versa, in such a manner that it will hang together like a lace after the foundation is destroyed with chemicals which do not affect the embroidered yarn.

AFCT: Association Farancais de Controle Textile (French Association for Textile Control).

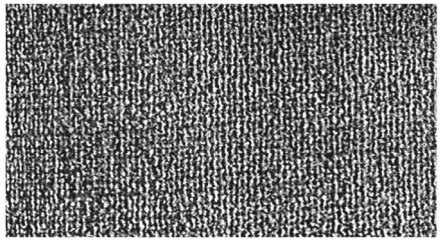
Affinity: The quantitative expression of substantivity. A measure of the force which binds dye or textile auxiliary to a substrate like fibre. It is the difference between the chemical potential of the dye in its standard state in the fibre and the corresponding potential in the dyebath. In dyeing, affinity essentially means the preferential attraction of the dye for the fibre rather than the solution of the dyebath.

Afgalane: A plain-weave all-wool dress fabric containing: (a) woollen warp with woollen weft (b) worsted warp with woollen weft. In both types, the warp has usually S and Z twist alternatively with S twist woollen weft.

Afghan: A knitted or crocheted wool blanket, made with fancy coloured stripes.

Afghan carpet: Afghanistan carpets made in Turkestan and Afghanistan of wool or goat's hair; the medium long loose pile is tied in Senna knot. The patterns are angular octagons, diamonds and sometimes stiff floral designs in red, brown, blue and white. Most of these carpets have a strong odour due to imperfect washing of the wool.

Afghaline: Originally made from Afghan wool (laine=wool). Plain weave, medium weight, all-wool woven fabric. A lightly pearled appearance due to the use of pairs of S and Z yarns, alternately in both warp and weft. Used for ladies dress material with faint, striped pattern on the back.



Afghaline

Afiume: A coarse grade of flax grown in Egypt.

AFNOR: Association Francaise de Normaisation, Paris (French Standards Association).

A-Frame: A movable batching unit in which the horizontal roller is supported by two A shaped frames. This unit is used to wind fabric in batch form for either storage or processing.

Afric, African fibre: See **Crin d'Afrique**.

African bass: Very coarse, dark, stiff and tough fibre, yielded by the leaf stalks of the bamboo palm in Africa; used for brushes; also for lines by the natives.

African fibre: Commercial name for a fibre yielded by the leaves of the palmetto in Algiers. Used for mattress stuffing.

African print: Printing technique on cotton fabrics used mainly in the countries of West and Central Africa (e.g., Congo, Nigeria, Ivory Coast, Senegal, Kenya, etc.). The prints are characterized by typical naturalistic designs coloured with usually a few frequently repeated colour combinations like golden-yellow, maroons, bottle-greens, browns, etc. Fabrics are usually used on both sides and hence, full penetration is required so that print would look same on both sides.

African silk: See **Anaphe silk**.

African violet: The pinkish-violet of the flower of the same name.

Afridi: A cotton fabric made by the natives in India and decorated with wax ornaments.

After burn time: Time consumed between the moment the ignition flame is removed and the extinction of the flame on the test specimen.

Afterchrome dyes: Dyes for wool which can be dyed by the after chrome dyeing method. See **After chroming, Chroming of dyes**.

After chroming: See **Chroming of dyes**. In after chroming method of dyeing chrome dyes, the dyeing is done first in a similar manner to an acid dye and then treated in a chrome bath to produce the final shade. Dyeing with good light and wet fastness properties are obtained.

After coppering dyes: Some direct dyes having a hydroxyl group in an Ortho position to the azo nitrogen atom are capable of forming stable metal complexes with metal ions are often given an after treatment with copper salts to improve their light-fastness.

After coppering of direct dyes: See **After coppering dyes**.

After coppering test: A test to find out the after copper treatment of dyes. The test is as follows: Take 10ml of 30% H_2O_2 in a test tube and add 2–3 drops of sodium silicate to it. Shake well and add 1ml con. Ammonia. Shake well and wait till all the gas formed has escaped, if any, and then add the test specimen. An effervescence with the evolution of oxygen proves that the specimen is treated with copper salts.

After flame (in flammability test): Persistence of flaming of a material under specific test conditions, after the ignition source has been removed.

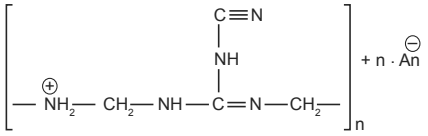
After flame time (in flammability test): The length of time for which a material continues to flame, under specified test conditions after the ignition source has been removed (also called duration of flame).

After glow (in flammability test): Persistence of glowing of a material, under specific test conditions, after cessation of the flame or if no flaming occurs after removal of the ignition source.

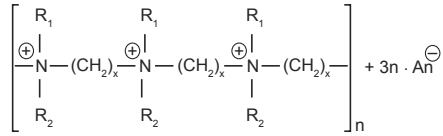
After glow time (in flammability test): The length of time for which a material continues to glow under specified test conditions after cessation of the flaming or after the ignition source has been removed (also called duration of afterglow).

After-image: The sensation of colour remaining after the stimulus has ceased where, for example, one stares at an image or object and then looks away to a white surface. The shape remains fixed for a while. Often, the colour of the original image is found to be complementary to the after-image. See also **Complementary colours** *and* **Accidental colour**.

After-treatment of dyeing: After treatment of dyes are done to improve wet fastness (usually reactive and direct dyes). Most common after treatments are based on formaldehyde condensation products or polyammonium compounds. These products (cationic) can bond with anionic dyestuffs and reduce the water solubility of the dye, and dye migration is prevented, whether substantive dye or dye hydrolysate.



Structure in principle of a formaldehyde condensation product



Structure in principle of a Polyammonium compound

After-treatment: Any treatment done after a particular process is completed. In dyeing, it refers to treatment given to improve properties; in non-woven, it refers to finishing process carried out after a web has been formed and bonded. Examples are embossing, creping softening, printing and dyeing.

AFU: AATCC Fading Unit.

AG: Alginate fibre.

Aglao- (G): Bright.

Agraffe: An ornamental clasp, loop or lock.

Agar agar: Agar agar is extracted from various red and brown algae which grow on the sea bed in warm temperature seas like India and China. It greatly swells in water, dissolves in hot water and sets on cooling to a jelly form at a concentration as low as 0.5%.It is used as a finishing agent, clarifying agent and thickener.

Agaric: Cotton fabric with a loop construction, like towelling.

Agave: Leaf fibres obtained from the various aloe and century plants; used for ropes and cords.

Ageing: (1) Treatment of fabric in moist steam, especially printed fabric from printing machine. Ageing is also done in the dyeing of certain colours, e.g. Aniline black.

(2) Deterioration of textile or other materials caused by gradual oxidation during storage and/or exposure to light.

(3) The oxidation stage of alkali cellulose in the manufacture of viscose rayon from bleached wood pulp.

Ageing, accelerated: See **Accelerated ageing**.

Agenois: Unbleached linen made in and around Agen, France; Obsolete.

Ager: A machine or chamber used for ageing. It can be a separate machine or a part of machine/range like pad-steam range. The chamber machine is filled with moist steam by suitable method and the dyed or printed fabric is passed through the steam filled chamber in loop form or over guide rolls to give time for the treatment. See **Ageing**.

Aggebonce: A silk embroidered cotton fabric, made in Syria.

Agglomerate: A combination or aggregation of colloidal particles, molecules, ion, dyes, particulate dirt, etc., in the form of clusters of approximately spherical shape.

Agglomeration: The tendency to form agglomerates. An indiscriminately formed cluster of particles. For example: A cluster of particle on the fibre.

Aggoned bundei: The best grade of Indian and Japanese raw silk. In European markets it is called Tani or Tanny.

Aglet: A white lacing cord.

Agra gauze: A plain weave open-set silk fabric having a gauze like appearance and given a stiff finish and is used for trimmings.

Agre' gauze: Same as **Agra gauze**.

Aggregate: Assembling several separate units into one.

Aggregate dyestuff: Occurs among other things, flat-bed screen printing due to surplus dye paste passing through the screen. The dye paste is not adsorbed by the substrate during the squeeze process, but nevertheless ends up on the printed goods when the screen is lifted and causes dyestuff aggregation there.

Aggregation: Chemical association of dissimilar molecules to form molecular associates, e.g. as occurs typically between dyes and levelling agents which possess dye-affinity.

Aggregation value or aggregation number: The number molecules in an aggregate.

Agitate: To stir or to mix, as in the case of a dyebath or solution.

Agnelin: Antiquated an obsolete name of Danish wool from Agnelin province of Denmark.

Agneline: Coarse, black, stout woollen, made with a long nap, thoroughly filled to shed water; used by the poorer classes in Europe for winter clothing.

Agra: Large and very thick knotted wool or cotton carpets, made in India. The colours are blue, green and browns.

Aguilles: Plain woven cotton cloth made in Syria.

Aguillettes: Metal-tagged laces which replace the sewn ones to attach the breeches to the doublet.

AICQ: Associazione Italiana per il Controllo della Qualita, Milano (Italian Society for Quality Control).

AICTC: Associazione Italiana de Chimica Tessile e Coloristica, Milano (Italian Association of Textile Chemists and Colourists).

Aida: Plain weave fabric with pattern appearing alternately on the face and on the reverse side; used as table cloth and awnings, etc., for table purposes, awnings, etc.

Aida canvas: Coarse yarn, open work, highly chemically finished woven fabric (cotton viscose filament) also double weave consists of 2–3 layers often with pattern on both sides.

Ailanthus: Wild silk of greyish or brownish colour, produced in ancient India.

Ailesham cloth: Fine linen cloth made in England in the Middle Ages.

Air balloon system: Another term for air injection for the untwisting and crease-free ballooning of tubular knitted fabrics, normally before passing through a squeezing.

Air blade: See **Air knife, Squeegee**.

Air blanket in dyeing system: An air pressure blanket/cushion created by compressed air and positioned above the dyebath is employed in some yarn and piece dyeing machines to reduce the liquor-to-goods ratio and prevent boiling of the liquor. This system is also useful when the goods for dyeing are less than the full capacity of the machine. Pump cavitation is also avoided by this means.

Air brushing: Blowing colour on fabric or paper with a mechanized pneumatic brush.

Air conditioning (in textile): A chemical process for sealing short fuzzy fibres into a yarn. Fabrics made from air conditioned yarns are porous because they allow more air circulation.These fabrics are cooler.

Air cushioning (in yarn dyeing): See **Air blanket in dyeing system**.

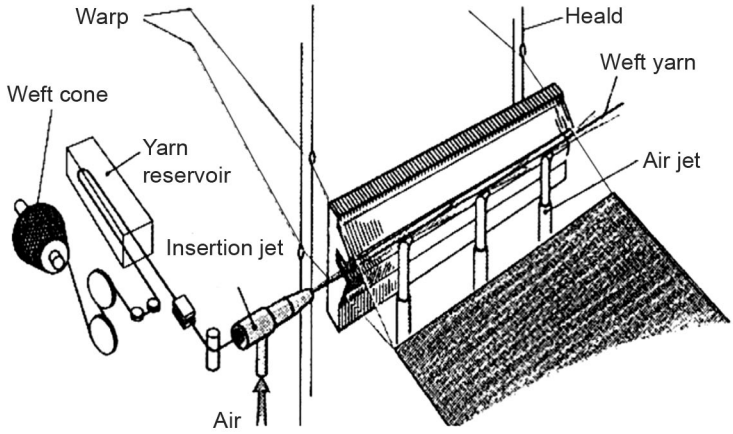
Air drying: Air drying is sometimes carried out in the open, with goods suspended by hanging over rods or wooden slates or frames. It is the simplest and most gentle and probably cheapest method of drying and involves no energy consumption.

Air entangled yarns: See **Compacted yarns**.

Air forming: A process in which air is used to separate and move fibres to fashion a web such as the Kroyer process for short fibres, usually of wood pulp.

Air-injection dyeing: A dyeing procedure employed in beam dyeing machines which involves the injection of fine bubbles of air in order to reach the dead zones in the yarn packages and disperse air contained therein.

Air-jet loom: A loom in which the weft yarn is propelled through the shed by means of a jet of air.



Weft insertion by jet

Air-jet yarn: Yarn made by the air-jet spinning method. The yarn more closely resembles, but is weaker than, ring-spun yarns.

Air-jet method (spinning): Draw-frame sliver (often combed) is supplied to the air-jet spinner, with twist being inserted to the fibres, largely on the yarn surface, by the vortex created in one or two air-jet nozzles, generally only one when spinning 100% cotton, the yarn structure therefore consisting of a core of largely parallel fibres and a sheath of wrapped (twisted) fibres.

Air-jet spinning: Spinning developed by m/s Murata of Japan. In this, roving is directly fed to the spinning machine through a drawing frame into the spinning zone in which two air-jets are arranged, one behind the other. In the first jet, the yarn is given a false twist effect that is untwisted by the second jet. Hence, the conditions are almost like the OE spinning. With this method, fine yarns can be spun with high velocity. The yarn is directly wound on to the bobbins. In this, pre-spinning and subsequent winding operations are omitted.

Air-jet weaving: An intermittently directed stream of compressed air, with or without additional air-jets (via relay nozzles), serves as the weft insertion medium by conveying the weft yarn through the shed.

Air-jet texturing: See **Texturising, Texturing, Airjet.**

Air-jet weaving machine: A weaving machine where air-jet weaving principle is adopted. See **Air-jet weaving**. The air-jet weaving machines are the weaving machines with the highest weft insertion performance and

are considered as most productive in the manufacturing of light to medium weight fabrics, preferably made of cotton and certain man-made fibres (sheets, shirting fabrics, linings, taffetas and satins in staple yarns of man-made fibres); it has anyway to be pointed out that technically positive results are obtained at present also with heavy weight fabrics (denims) and that few manufacturers also produce machine models for terry production. These machines are the ideal solution for those who want to produce bulk quantities of customized fabric styles. The weaving widths range generally from 190 to 400 cm. As regards the multicolour weft carrier, up to 8 different wefts can be fed.

Air knife: A paste application system used in coating. The blade applies a coating paste to the free running fabric web, i.e. without support from underneath.

Air laces: These are etched-out products (burnt out products) without printing. Yarns are embroidered on the ground fabric which is then burnt out with some after treatment.

Air-laid nonwovens: Fabrics made by an air-forming process (q.v.). The fibres are distributed by air currents to give a random orientation within the web and a fabric with isotropic properties.

Air laying: A method of forming a fibre web or batt in which the fibres are dispersed into an air stream and condensed from the air stream on to a permeable cage or lattice to form the web or batt.

Air permeability: The rate of air flow through a material under differential pressure between the two fabric surfaces or the porosity, or the ease with which air passes through material. Air permeability determines such factors as the wind resistance of sailcloth, the air resistance of parachute cloth and the efficiency of various types of air filtration media. It is also a measure of warmness, or coolness of a fabric.

Air pollution: Air pollution is caused by the changes in the natural composition of atmospheric air due to the presence of smoke, soot, dust , gases, aerosols, vapours, foul smelling substances, etc.

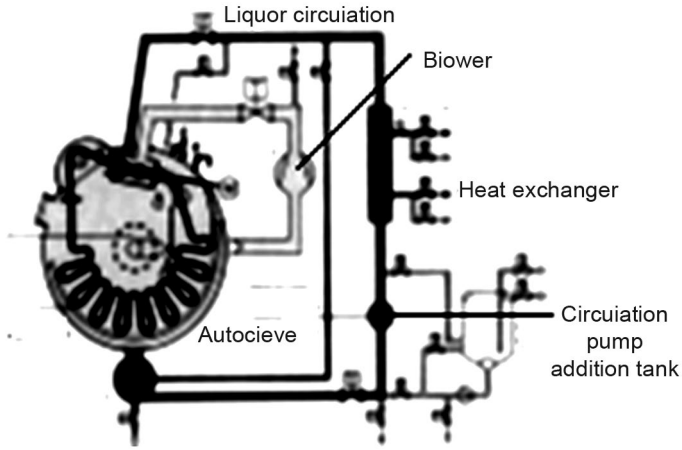
Air retentivity: It is all the forces existing in a garment which participate in retaining the layer of air which is in close contact with the human body even under stormy weather conditions.

Air wicking (in tyre fabrics): The passage of air longitudinally along or through yarns in a fabric that has been encased and cured in rubber or any other elastomer, that is, air permeability in the plane of the fabric.

Airflow doctor blade system: Steel doctor blade system with a plastic profile making possible precise control of the colour paste application and

penetration during printing by independent adjustment of the doctor blade angle and contact pressure.

Airflow dyeing machine: Soft-flow dyeing machine developed to reduce the MLR and improve dyeing efficiency. In such machines, airflow moves and controls the fabric by means of the circulating air to which finely dispersed dyes and auxiliary products are fed via jet systems. Higher fabric speeds can be used in the gas flow than is possible in a hydraulic system, since the fabric rope is carried neither in the liquor nor with the liquor, and is consequently subject to lower tension during acceleration. There are therefore different prerequisites in bath exhaustion, produced not by the liquor encompassing the textile fabric but from the dye and product preparations distributed through the textile fabric. As the liquor supply is greatly reduced in consequence, the textile fabric liquor charge is reduced, i.e. in the case of fabric movement in a gas flow, the free space between fibres is not completely filled with liquor. Depending on the physical parameters of the gas, as air with a differing water vapour content, a state of equilibrium occurs in which the injected liquor quantity is interchanged with the textile fabric moisture charge. This flows out of the treatment vessel back into the injection circuit in the same quantity as the injected liquor. The suction conditions of the injection pump are better than those of a liquor pump, and only a small liquor supply is therefore necessary.



Then airflow jet dyeing machine (schematic)

Air-blue: Used to describe the light-blue of the thrush egg.

Air-laid non-woven: Fabrics made by an air-forming process (q.v.). The fibres are distributed by air currents to give a random orientation within the web and a fabric with isotropic properties.

Airplane fabric: A plain, tightly woven, water repellent fabric, traditionally made of mercerized cotton during world war II. The fabric was treated with cellulose acetate dope and used to cover the wings, tail and fuselage of airplanes. Today, similar fabrics are made from nylon and polyester or cotton blends and are used as rainwear and sportswear.

Air-supported roof: A fabric-based roofing system that is supported and held in place by air pressure.

Air-vortex spinning: Air-vortex spinning is similar to open-end spinning but, utilizes a stationary tube rather than a rotor. A high-speed air vortex is created in the tube that deposits fibres within the tube and simultaneously provides twist due to the vortex. The yarn is continuously withdrawn as in the case of open-end spinning.

Air wicking (in fabrics): The passage of air longitudinally along or through yarns in a fabric that has been encased and cured in rubber or other elastomer, that is, air permeability in the plane of the fabric.

Air-force blue: A dark-blue colour. The blue adopted by the Royal Air Force in 1919.

AIS: (1) Association Internationale de la Savonnerie (International Association of Detergent Manufacurers).

(2) Association Internationale de la Soie (International Silk Association).

Aitho (G): Burnt brown.

Aithochrous: Reddish-brown.

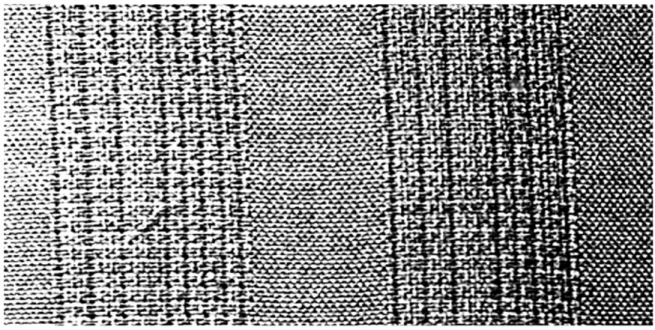
AITIT: Association Internationale de la Teinture et de l'Impression Textiles (European Association of Textile Dyers, Printers and Finishers).

A' Jour fabrics: Open-work woven or knitted fabrics, produced with fine yarns. The open-work effects (holes) are due to the fabric construction. In woven varieties, the ground is of plain weave and the open areas of leno weave construction. It is used for dress materialsand curtaining.

Ajamis: Calico from the Levant.

Ajiji: Cotton muslin with silk stripes, made in India.

Ajour: Ajour is a collective term for open work fabrics, woven or knitted. The open work areas are produced by the structure, e.g. leno, basket weave, missing warp or weft threads, lacy, open work embroidery. Normally, cotton with viscose fibre; a decoration used on blouses and underwear.



An example of Ajour

Akaakai: Hawaiian bulrush used for mats, baskets, etc., by the natives.

Akaroa: The ribbon tree, Plagianthus betulinus, of New Zealand, yielding a flexible, lustrous, strong lace-like bast, used for nets, lines, etc.

Akhissar: Rugs made in Asia Minor, the warp and weft are of wool, the loose pile of mohair, tied in Ghiordes knot. Red and golden brown colours are used.

Akia: A very tough bast fibre, used for ropes in Hawaii.

Akund: (Asclepias fibre, Calotropis floss) A natural cellulosic fibre belonging to vegetable hair group.Seed hairs of the Asclepias type (Africa, Asia and Central and South America). Similar to kapok fibre. It grows about 50mm length, yellowish in colour, smooth, silklike, and lustrous, but coarser and stiffer than kapok. Main uses are for stuffing upholstery and braids, selom spun or blended.

AL: (1) Alfa grass; (2) Alginate fibres.

Alabaster: Akin to alabaster in its whiteness and the smoothness of its texture. Shakespeare's *Richard III*, Act 4 Scene 3 '*Gentle babes girdling one another Within their alabaster innocent arms'*.

Aladjas: Heavy taffeta with stripe or flower patterns, made in India.

Aladsha: Fancy cotton goods, originated in the East.

Alagai: Union silk fabric made in Asia.

Alamode: Plain-woven, glossy, light and soft silk fabric, used for scarfs, linings, millinery.

Alapeen: 18th-century fabric in England, made of worsted or mohair and silk.

Alaska: A mixture yarn of long staple cotton and carded wool.

Alatcha: Yarn dyed cotton fabric, having stripes on a blue base; made in Turkestan.

Alb- (L): White.

Albert cloth: Reversible all-wool materials, each side of different colours, and so finished that no lining is required; used chiefly for overcoats; better known as "golf cloth", "plaid-back Coverts", etc.

Albanian embroidery: It is cross and goblin stitch in green, red and blue over canvas, showing conventionalized flowers or geometrical forms.

Albarazine: Spanish wool from Albaracia, Aragonia.

Albatross: (1) A soft light-weight wool or wool blend fabric in plain weave with a napped, fleecy surface that resembles in texture, the breast of albatross. It is usually light-coloured and is used in negligees, infants wear, etc.

(2) Albatross is probably a mistaken version of '*Alcatraz*', a Portuguese word for the sea-fowl (and the origin of the name of the prison island of San Francisco). Curiously, although the Alcatraz was black in colour, the word mutated to 'albatross' in order to describe the white petrel of Coleridge's *Ancient Mariner,* gainedits credibility on its journey from the 'alb' prefix which means white.

Albernus: Oriental woollen fabric, similar to camlet, imported into France through Marseilles.

Alberoni: Obsolete French and Holland camlet, made with silk and gold thread warp and silk or Angora wool filling.

Albert cloth: "Albert cloth" that is named after England's prince, is double-faced, reversible coat fabric, often with a different face and back, each side of different colours and so finished that no lining is required. Made from wool, it is a good quality cloth used to make expensive overcoats for men, sometimes with velvet collars. It is used chiefly for overcoats and better known as "golf cloth", "plaid back", etc.

Albert cord: Fancy English alpaca cloth in the 19th century.

Albert crepe: English dress fabric iijade of silk and cotton mixture.

Albescent: Becoming white.

Albesine: A grade of wool from Spain.

Albigeois: Grey, unbleached linen canvas, made in Languedoc, France.

Albissola: Italian bobbin lace having small pattern.

Albumen: Protein from animals (egg, blood, fish and milk albumen) or vegetable sources (soya). Albumen is water soluble, coagulated by water, and

can be salted out from their solutions by ammonium suphate in the presence of alkali. Formerly they were used in printing as thickeners and fixing agent, but now is only of academic interest.

Albumin: Same as Albumen.

Alcanna, alcana: The reddish-orange body dye from the Oriental plant of the same name which is of the same family as the European **alkanet** plant.

Alcandra: Non-woven imitation leather made from (e.g. polyester and 40% polyurethane) microfibre batt impregnated with polyurethane. It handles like fine leather but is lightweight and easy care.

Alcatifa: Spanish trade name of fine Oriental rugs and carpets.

Alcatquen: Fine Persian knotted rugs that are inter-woven with gold thread, used over divans.

Alcyonne: Closely woven ten-leaf silk satin drapery fabric, made with single or ply warp and often with filling of a different colour from the warp.

Aldehyde green: A green dye, also referred to as **emeraldine**.

Alencon: Lightweight French cloth of silk and cotton.

Alencon lace: French needle-point lace made with net ground, the reseau resembling the Brussels pjint reseau. Early Alencon, also called point Je France, resembles Venise and Spanish point. Chief characteristic of the Alencon lace is the cordonnet, usually filled with horsehair; the design usually follows the taste of the period the lace was made in. Usually made in a floral design with a heavy corded thread outlining in it. The background is a fine mesh or net.

Alencon bar: Needle-point bar used to fill-up space, consists of a zig-zag thread covered with button-hole stitches.

Alencon ground: First made as bride and then as reseau; the bride was either plain or picotee, while the grande bride was a six-sided mesh, covered with button-hole stitches. The reseau was worked after the pattern to join it.

Alepine: (1) Twilled fabric of English origin made of silk warp and worsted filling in serge weave, and dyed in the piece, usually black. Used for mourning wear; (2) Twilled cloth of soft-spun silk warp and fine worsted filling, made in Aleppo, Syria, originally only in black, later in all colours. Imitated in England in hard spun worsted; (3) French fabric made of silk or cotton warp and soft worsted filling in single or various colours.

Aleppo: Cotton from Syria; also raw silk exported from the city of Aleppo.

Alesan: A light chestnut colour.

Alexander: A medieval striped silk that originally said to have come from Alexandria, Egypt; used for church vestments. See **Burdalisander**.

Alexandra: A plain woven cotton fabric that is found in Austria, dyed black and finished with a dress face; used for linings, underskirts, etc.

Alexandria: Fine, light-weight dress fabric made of cotton and wool with small woven design. Possibly its name derives from the very early silks and wool fabrics made in the ancient city of Alexandria, which featured small designs such as flowers and scrolls.

Alexandrine: Ancient name for fine cotton and linen cloths woven in Switzerland and France with fancy coloured patterns over white foundation. Given a silk-like finish.

Alexandrite: A valuable gemstone named after Tsar Alexander II of Russia. Alexandrite is green in colour but, appears columbine-red in artificial light. It has colour shifts from green to orange-yellow to red according to the crystal direction.

Alfa grass: Also called Esparto grass (North Africa, Spain, Sicily) is a natural cellulosic hard fibre. The fibre is extracted from their stalks by boiling an alkali and then retting. Hemp like fibre without lustre, stiff greenish-yellow, 10–14 cm in length and 90–500 um thick with low tenacity. Used for making hats, mats, as jute substitute, etc.

ALG: Alginate fibres.

Algaecide: The material that kills algae.

Algerian: A yellowish-brown.

Algerian lace: A gimp lace made of silver and gold thread.

Algerian stripes: Fabric having alternate stripes of coarse cotton and very fine silk, often with gold threads and is usually cream coloured; used for women's burnouses.

Alginate or algin: An extract of see weed used as thickener. Sodium alginate is used in textile printing pastes, and sometimes to thicken dye solutions for direct application. It is a preferred thickener of reactive dyes because it does not react with the dye. It comes in a number of variations which have somewhat different properties. Low viscosity types are more useful for reducing migration of wet dye solutions for fine line work, while high viscosity are more suitable for making printing pastes.

Alginate fibre: Fibre formed from a metallic salt (normally calcium) alginic acid, which is a natural polymer present in seaweed. Alginate fibre is soluble in water.

Alginate film: Alginate film is made from calcium alginate, which is manufactured by precipitation from a soluble alkali alginate. Used as a paper substitute in heat transfer printing.

Alginic acid: [algin; $(C_6H_8O_6)n$] A yellow-white organic solid that is found in brown algae. It is a complex polysaccharide and produces, in even very dilute solutions, a viscous liquid. Alginic acid has various uses, especially in the textile and food industry as a thickener, stabilizer and texture agent.

Alhamba quilt: A jacquard figured fabric with a plain ground weave that requires two warps. The figuring warp is usually two-ply and coloured, the ground warp singles and undyed. The weft is often made on the condenser system, soft spun and of coarde count.

Alice blue: US term for a greenish-blue after Alice the wife of Theodore Roosevelt. As Alice Blue, one of the 140 colours in the **X11 Colour Set.** It has hex code #F0F8FF.

Aliphatic compounds: Derived from aliphatic Hydrocarbons of the methane type CH_4. Typical examples of this group of compounds include, e.g. fats, oils, soaps, sugars, alcohols and fatty acids. Originally used to describe fats.

Aliphatic amino acids: H_2N-R-COOH. One of the monomers used in the production of used for nylon 6 by polycondensation.

Aliphatic di-acids: HOOC-R-COOH. One of the monomers used for the production of nylon 6.6 by polycondensation.

Aliphatic di-amines: NH_2-R-NH_2. One of the monomers used for the production of nylon 6.6 by polycondensation.

Alizarin, alizarin: A synthetic red dye identified in 1820 and replacing the natural red dye from the root of the **madder** plant. It produces crimsons, greens and blues and other shades depending on the **mordant** used, in particular, **alizarin crimson**. Produced artificially since 1868 after which vineyards began to replace the redundant madder fields of Europe. This was the first natural pigment to be made synthetically. Alizarin dyes replaced aniline dyes but were themselves replaced in 1958 by **quinacridones,** which have greater **light fastness**.

Alizarin crimson: A bluish-red, serving as a substitute for **rose madder**. See **Alizarin**.

Alkali: A sub class of base, though often used to refer to any base. Alkaline is often used to refer to solution that is basic – having pH greater than 7.

Alkali binding agents: Chemicals used in naphthol dyeing for neutralization and pH adjustments of the coupling baths. Typical alkali binding agents are acetic and formic acids, aluminium, zinc and magnesium sulphates, and mono and disodium phosphates.

Alkali blue: A class of blue pigment with a very high tinting quality that is used in making printing inks.

Alkali cellulose: The primary intermediate product got by the action of strong alkali on purified cellulose, like viscose ($C_6H_9O_4$-O-Na+).

Alkali damage: Caused by alkali retention on the fabric after any treatment where caustic soda is involved. Alkali cannot be easily washed off, hence has to be neutralized with acids after the rinsing process. Alkali damages are usually dyed in darker shades because of localised mercerization due to drying of alkali at the affected place.

Alkali donors: These are chemical compounds which release OH- ions under the influence of heat during dyeing. Alkaline salts of volatile and easily decomposed organic acids are used as alkali donors.

Alkali fastness testing of dyeings and prints: See **Colour fastness to spotting, Alkali**.

Alkali insoluble impurities (in scoured wool): The oven-dry ash free alcohol extractives- free alkali insoluble substances other than vegetable matter base, such as skin cotton or other fibres, paper, string, tag, etc., pieces and paint pieces, etc.

Alkali earth metals: Collective term for calcium, barium and strontium which are classified under Group II A of the periodic table. Magnesium is also often included as alkaline earth metal.

Alkali shock process (scouring): A short period process for open width scouring of cotton and cotton/polyester, like impregnation with caustic soda, wetting agent and chelating agent followed by steaming and washing.

Alkali shock process (printing): A printing process for reactive dyes, whereby the printing is done without alkali and the fabric is treated with lye and electrolytes in an open width scouring machine (1–2 boxes) in order to fix the reactive dye. The temperature of the bath will depend on the reactivity of the reactive dye used.

Alkali shock process (dyeing): In continuous dyeing of polyester/cotton fabric the reactive dye can be fixed by caustic shock process, whereby the fabric is passed through a mangle with concentrated caustic soda.

Alkali solubility (in wool): The percent of clean wool that is soluble in a specified alkaline solution under controlled conditions of temperature and time.

Alkali stains on textile fabrics: Often described as localized mercerization. It is due to alkaline residues on cellulose, mainly due to caustic soda giving rise to darker areas in subsequent dyeings. Even if the alkaline residue is of low strength as the fabric is dried, the strength increases and localized mercerization takes place which causes that place to dye darker. See **Alkali damages**.

Alkali traces (in fabrics): It can be detected by washing the fabric with distilled water at 100°C and adding 1–2 drops of methyl green solution (0.01g of methyl green in 100ml of distilled water). Alkaline traces in the water will cause the methyl green to lose its colour.

Alkali treatment of polyester: Alkaline pre-treatment for polyester. In this process, polyester molecules on the surface are hydrolytically split, partially dissolved, producing a silk like handle and drape together with reduced lustre and increased dye uptake. In controlled conditions of pH, temperature, and time, usually 10–20% weight loss is achieved.

Alkaline: A term used to describe a material having a pH greater than 7.0 in water.

Alkaline degumming: See **Acid degumming**.

Alkaline discharges: Discharge printing using discharge paste containing potassium carbonate or caustic soda.

Alkaline discharge-resists: Printing process for polyester. Disperse dyes which are saponified by alkali are used as ground. Alkaline lye, alkali carbonates, silicate of soda and alkali dispensers are used as alkali. By this method, wider range of disperse colours can be used.

Alkaline milling: See **Milling**.

Alkaline scour: See **Scouring**.

Alkanet: An ancient red or orange dye from the roots of the Mediterranean plant of the same name and of the same genus as the **alcanna.** Also called **‘**anchusa’. See **Henna**.

Alkannin: A natural bronze-coloured pigment.

Alkene suphonates: Used as anionic surfactants, these are commonly called paraffin sulfonates or secondary alkane sulphonates and are used extensively, especially in Europe. Their commercial synthesis requires a relatively high capital investment, so they do not find worldwide application in household detergents. They have high biodegradability, low toxicity and, depending on chain length and degree of sulphonation, reasonably good water solubility. Paraffin sulphonates are made by sulphoxidation or sulphochlorination of

n-paraffins in the C_{14}-C_{17} range. About 90% of the product of sulphoxidation consists of monosulphonates, with the balance being di- and polysulphonates. Eighty to ninety percent of sulphonation occurs at the internal carbon atoms, rather than at the ends of the chain, with the sulphonate group substituted almost uniformly on secondary carbons throughout the chain.

Alkyl amines: Amines with substituted alkenes.

Alkyl suphonated: Lignin is a complex polymer found in wood which is separated from cellulose during manufacture of paper and other products by various means, including sulphonation. Lignin sulphonates are obtained as by-products of the sulphite process. These are widely disperse, water-soluble lingo sulphonic acids, with an average molecular weight greater than 100,000. They find a variety of uses as low cost emulsifiers in areas such as ore processing and oilfield chemicals. Impurities include sugars, such as glucose, mannose, xylose, and arabinose. Both dried powder and aqueous solutions are sold, usually without stringent specifications. Some purified products find their way into higher value applications, such as pesticide formulations.

Alkyl aryl suphonates (AAS): They are surface active substances with 1 or 2 aromatic rings which contain one or more alkyl chains and a sulpho groupalkyl aryl sulphonates are classified into lower molecular weights (wetting agents) and higher molecular weights (detergents). As a thumb rule, more branched the chain better the wetting power and more the molecular weight of the alkyl chain, better the detergency.

Alkyl benzene sulphonates: The alkyl benzene sulphontes are used as anionic surfactants.The term alkylbenzenesulphonate (ABS) is generally applied to the branched-chain products, which are only biodegradable with difficulty. ABS is not used in developed countries except for specialty applications where it will not reach natural waters (e.g., as an emulsifier for agricultural chemicals). As opposed to ABS, linear alkylbenzene sulphonate (LAS) is rapidly biodegradable under aerobic conditions.

Alkylphenol ethoxylates (APEs): A group of chemicals that are used in wool scouring and may be found in polluted water. Some of them are endocrine disrupters.

Alkylation: Introduction of alkyl groups into organic compounds by addition or substitution reaction.

Alkylation (degree of): Descriptive term for the quantitative proportion of alkylated groups in a molecule.

All silk crepe: The example for this type of fabric is 170 × 110 using 13/15 denier warp and 18/20 denier weft. It would be woven in plain weave. The

warp and weft arrangement would be two S twist alternating with two Z twist which during processing will give the crepe effect. It is an extremely light fabric, the weight per sq. metre would be around 2 oz.

All skin fibres: Modified viscose fibres of the so called super-cord and super-fest-s type the cross section of which no longer consists, as with normal viscose fibres, of core and skin, but exclusively of a highly oriented skin as a carrier of special quality features such as increased tear strength and higher wet modulus.

Allabatis, Allibalis, Alliabat, Allibanis: Names of Indian cotton cloths, made either plain, embroidered or brocaded.

Allah haik: Moorish cloth made with equally wide stripes of nub cotton warp and fine silk warp of cream colour. Used for turbans and burnouses.

Allahabad: Large knotted wool or cotton carpets made with loose thick pile in India.

Allapine: See **Alapeen**.

Allochorous, Allochroous: Multi-coloured or changing colour.

Allochroic: Changing in colour.

Allochromatic: Referring to a change of colour; as regards minerals, having no colour.

Alleanthus: Very tough fibre yielded by the bast of the Alleanthus zeylanicus, a tree in Sri Lanka; used for ropes, nets, etc.

Allegias, Allejars: East Indian pure cotton muslins, made in plain weave, also mixed with silk or other fibres. Also called Bethilles.

Allejah: A fabric made with gold, green and white stripes that was used to make dresses in the 18th century.

Allemande: Corded French silk dresses goods and men's vesting.

Allen: Variety of raw cotton where the staple is fine and silky, measuring up to 35 mm, the lint is less than 30 percent.

Alley (Spinning): The area between the breaker carding and finisher carding machines in which alley tender works.

Allgaeu carpet (ribbon carpet, patchwork carpet): It is hand-made smooth carpet in a strong cotton yarn warp with a ribbon-like weft (fancy weft carpet) in strips of woven and knitted fabric remnants, stockings, selvedge trimmings, etc.

Alliabably: Fine cotton muslin from Dacca, Bangladesh.

Alligator: The skin of the reptile, easily recognizable by square boxy markings. Used mainly for shoes and handbags.

Allonge-perruque: French term for periwig, also called state-wig. Worn by fashionable men in the late 17th and early 18th century. Introduced probably by Louis XIV and usually in black or dark brown shades. The periwig had very high 'horns' on top of the forehead and was extremely long, curled and flowing down the back and over the shoulders.

Allover lace: Any piece-lace with a pattern repeated regularly all over without marked divisions in the pattern, no edgings, borders, etc.

All-over designs: Designs with balanced motifs that recur regularly within the repeat unit. The motifs cover the fabric with little ground showing.

All-over print: A fabric that has a printed pattern that covers practically the whole face of the fabric.

Alloa wheeling: Heavy Scotch knitting woollen yarn.

Allowance body tolerance: The extra dimensions allowed on garment measurement over body measurements. See **Seam allowance**.

Alloy: A solid or liquid mixture of two or more metals; or of one or more metals with certain non-metallic elements formed by fusing the components.

Almagra: Deep-red ochre found in Spain.

Almanesque: A variety of cotton goods used in Argentina.

Almond: Pink or yellowish-brown as in almond blossom; sometimes the greyish-green colour of the underside of the leaves of the almond tree. Used to describe a variety of colours.

Almond black: A black pigment.

Almond green: Greyish-green.

Alneestloni: Navajo blanket made in twill weave, both sides being different.

Alni mayini: Woollen blanket made by the Indians, made with a wide black stripe in the centre and narrower stripes at each end; the corners trimmed with black tassels.

Aloe: The fibres of the agave, made into net and lace in the Philippines, Italy, Spain and Paraguay.

Aloe hemp: Trade name for the Mauritius hemp and also for the leaf fibre of certain Indian Sansevieria species.

Aloe lace: A very fragile type of lace usually made in Italy, but some comes from Philippines. Very expensive, made from the fibre of the plant–aloe.

Alost: Belgian bobbin lace that is similar to the Valenciennes, the threads of the mesh ground being twisted four or five times.

Alpaca: (1) A close relative of the Ilama and is similar to guanaco. It exclusively lives in Chile, Peru, Bolivia and the higher levels of Andes. Its wool belongs among the finer animal hair qualities.

(2) A fabric from alpaca fibre or blends, (originally a cotton cloth with alpaca filling) that is used for dresses, coats, suits and sweaters. It is also used as a pile lining for jackets and coats.

(3) The fleece and fibre produced by the alpaca, an animal of genus Ilama(lama glamapacus). The fibre is obtained from several species, namely Huacaya and Suri.

Alpaca crêpe: A soft acetate or polyester crêpe with dull surface, fairly soft to handle. Used for dresses. See also **Crêpe**.

Alpaca lustre: A costly alpaca fabric with very high finish.

Alpaca mixture: 19th century undyed English fabric, made of cotton or silk warp and alpaca filling.

Alpaca Orleans: One of the first alpaca fabrics made in England in the 19th century; woven with a cotton warp and alpaca filling.

Alpaca rayon: Usually refers to soft non-lustrous fabric made of rayon or acetate. Used for women's wear; it is composed of four ply yarns 75 denier rayon being used for warp and 100 denier acetate in the weft. It is usually woven 48 in wide in plain weave with a texture of 36 × 34. In some cases, 2 ply to 8 ply yarns are used. Another example is 68 × 64, with 60s combed cotton warp and 150 denier Rayon weft. Usually woven in about 35 in width.

Alpaca stitch: A 1 × 1 purl links stitch that is knit so that so that the courses run vertically instead of horizontally as the fabric comes off the knitting machine. A garment made of alpaca stitch is not always 100% alpaca; it can be made of other natural fibres or manufactured fibres,

Alpenglow: The purple gleam on alpine snow.

Alp green: Yellow-green.

Alpha and beta amylase: The first process in wet processing of woven fabrics is the removal of starch which has been applied on the warp in the sizing process prior to weaving. This process is called desizing and is invariably done using enzymes. Enzymes are high molecular weight protein biocatalysts that are very specific in their action. Enzymes are named after the compound they break down.For example, amylase breaks down amylose and amylopectin; maltase breaks down maltose; and cellulase breaks down

cellulose. For desizing starch, amylase and maltase are used. Cellulase, on the other hand, is used for finishing cotton fabrics. This will be discussed in later chapters. Amylase will degrade starch into maltose, a water soluble disaccharide and maltase will convert maltose into glucose, a simple sugar. See **Desizing**.

Alpha cellulose: One of the three forms of cellulose. Alpha cellulose has the highest degree of polymerization and is the chief constituent of paper pulp and chemical dissolving–grade pulp.

Altar cloth: A very fine sheer, crisp fabric used, as the name suggests, for church cloths.

Alternating twist: A texturizing procedure in which S and Z twists are alternately inserted in the yarn by means of special heating arrangement to give special effect for the yarn and fabric made using the yarn.

Alternation (in designing): It is a specific instance of patterning in which a sequence of repeating motifs are presented in turn (short/long, fat/thin, round/square, dark/light). See **Rhythm**.

Alum: A term for a variety of chemicals. There are several compounds that are called alum. One is aluminium potassium sulphate-picking alum. Others include aluminium sulphate, aluminium ammonium sulphate and chromium potassium sulphate. Some alums are used as mordant in dyeing.

Alum sludge: A waterworks sludge formed when alum is the coagulant. The sludge is usually conditioned by adding polyelectrolytes, thickened and then dewatered mechanically, typically in a filter plate press.

Alumina: A strongly alkaline aluminium sulphate which is insoluble in water but soluble in acids. It is used to prepare aluminium mordant for dyeing and printing. $Al_4(SO)_4(OH)_4.2H_2O$.

Alumina fibre: A refractorymade of alumina (Al_2O_3) that can withstand furnace temperatures up to 1600°C.

Alumina gel: **[**$Al_4(SO_4)(OH)_{10}\cdot 2H_2O$]. A strongly alkaline aluminium sulphate which is insoluble in water but soluble in acids. It is used to prepare aluminium mordants for dyeing and printing.

Aluminium potassium sulphate: "Pickling" alum $AlK(SO_4)_2$.

Aluminium sulphate: An alum $Al_2(SO_4)_3$.

Alumnat: Cloth closely woven, black woollen fabric, made in Bohemia for the use of the clergy and alumni.

Alwan: Fine and plain woven fabric, made in Tibet of pashmina wool yarn.

Amabouk: Half bleached coarse linen, made in northern Ireland; used for sailors' shirts in earlier days; unbleached *amabouk* is used for bags.

Amadaure: Variety of Egyptian raw cotton.

Amadou brown: A dark reddish-brown.

Amadis sleeve: Tight fitting sleeve continuing on the back of the hand, invented in 1684 by Mlle le Rochois, an actress at the opera, who had unsightly arms.

Amamee: Smooth, closely woven cotton cloth from India; the coarser grades also called Tissuti and the finer Bissuti. Used for shirts, bed covers, curtains, and also for printing.

Aman: Plain woven and blue coloured cotton fabric, made in Syria.

Amana: Staple blue printed cotton fabric and knitted goods.

Amanouri: One of the best grades of Levant cottons.

Amaranth: The reddish-purple or deep crimson colour of the leaves of the Amarantus. The words amarantin, amarantine and amaranthine, signifying 'fadeless', 'immortal' or 'unwithering', refer to Pliny's imaginary and never fading amaranth flower.

Amauro- (L): Dark.

Amazon: A satin weave dress fabric with worsted warp and woollen weft, usually dyed in plain colours. It is lightly milled and raised to give a fibrous effect but, this does not conceal the twill effect of the satin weave.

Amazones: Woollen dress goods in South America.

Ambadal: A bandhani design. See **Bandhani.**

Ambari: Hemp. Very long, light coloured, silky but harsh and strong bast fibre, yielded by the *Hibiscus cannabinus* in southern Asia. Used for cordage, coarse bagging, etc.

Amber: The clear yellow-brown or reddish-orange of the stone amber; '*amber-coloured raven*' Shakespeare's *Loves Labours Lost*, Act4**,** Scene3. Amber as a stone variesin colour and the colour term embraces a wide variety of shades.

Amber yellow: A rich ochre-coloured yellow.

Ambient conditions: See **Atmospheric conditions**.

Ambient printing process: A registered printing process of the Ambiente Co., Helsinky, of local colouration of open width woven or knitted fabric with thickened dye solution in the nip of a two bowl padder. A wide range

of different lively variations in colour and designs are obtained with stripes of different widths and directions including circular, speckled and cloud like motifs.

Ambiphilic: Ambiphilic substances have double solubility, i.e. in oil as well as in water.

Ambivalent: Term used in resin finishing to describe cross linking agents with two different types of groups capable of reacting with cellulose.

Ambivalent cross-linking: The cross linking of cellulose with resin finishing agents containing different types of reacting groups.

Amblyopia: The condition of having defective vision.

Americaine: French dress goods of corded silk made with eight warps and eight picks in a repeat.

American cloth: In many places, an enamelledoilcloth for household or upholstery purposes.

American cord: See **Rat tail-cord**.

American grain count: A direct yarn numbering system for expressing linear density, equal to the mass in grains per 120 yards of sliver or roving.

Americana: Name for coarse cotton sheeting.

Americani or Amerikano: Unbleached cotton sheeting in various parts of Africa.

Americano Assilia: Name for grey cotton sheeting on the eastern coast of Africa. They came originally from the United States.

Americano Gamti: A very dark and coarse grey cotton sheeting on the eastern coast of Africa;imported from India.

Americano marduff: A stout grey cotton fabric in East Africa made of twill weave, imported from the United States or Europe; used for tents, sails and dresses by the natives.

American ulayiti: Native name of grey cotton sheeting on the eastern coast of Africa imported from Europe.

Amethyst: Violet-purple or purplish-blue (particularly in heraldry); from the Greek meaning ‘preventing intoxication’, a characteristic once ascribed to the stone of the same name.

Amertis: Closely woven calicos or cotton goods from India.

Amianthus: Fine, flexible asbestos; used for fireproof curtains, etc.

Amide resins: Synthetic resins of the type which includes urea resins, melamine resins and dicyanodiamide resins.

Amides: Organic compound derived from ammonia by substitution of one or more of its hydrogen atoms by organic acid groups.

Amiens or Amens: Closely woven twill cloth of hard-twist worsted, in solid colours, striped or made with patterns. Similar to the lasting but of better grade.

Amine end group: The terminating amine ($-NH_2$) group of a nylon polymer chain. Amine end group gives dye sites for nylon.

Amine functional cationic softeners: Long-chain amines are not water soluble at neutral and alkaline pH; however, when converted to their acid salt, they develop a cationic charge and become water soluble. They exhaust and become excellent softeners under acidic conditions. The cationic charge on a given hydrophobe is proportional to the number of amino groups; therefore, the attraction of the cationic portion to the fibre surface increases as the number of amine groups increase.

Amino acids: (Amino carboxylic acids), $R\text{-}NH_2\text{-}$ COOH, building blocks for proteins. Comprising of a carboxylic group (–COOH), an amino group ($–NH_2$) and a mostly very complicated chain (e.g. fatty acid chain) which can be aliphatic or aromatic. As a result of the simultaneous presence of amino and carboxylic groups, amino acids react as both acids and bases, i.e.they are amphoteric and form Zwitterions with two opposite electrical charges which neutralise each other within the molecule (Isoelectric point).

Amino functional silicones: Amino functional silicones are made by incorporating the appropriate organo-functional chlorosilane to the reaction mix. Amino functional silicones become cationic at acid pHs and exhaust from aqueous baths.

Aminocaproic lactum: Caprolactum.

Amino carboxylic acids: See **Amino acids**.

Aminolysis: Aminolysis occurs in presence of an amine. This reaction is similar to acidolysis, where splitting of a high molecular weight polymer involves resulting into a low molecular weight polymer with an amine terminal group as follows:

$$\underset{\text{Polyamide}}{\text{-NH-(CH}_2\text{)}_n\text{ -NH-CO-(CH}_2\text{)}_{n2}\text{ -CO-}} \quad \underset{\text{amine}}{\text{H}_2\text{N-NH}_2\text{à}}$$

$$\text{-NH-(CH}_2\text{)}_{n1}\text{- NH}_2 + \text{H}_2\text{N - R-NH-CO-(CH}_2\text{)}_{n2} – \text{CO-}$$

Polymer with amine terminal group

Aminoplasts: Self cross-linking resins. Collective term still used for urea formaldehyde and melamine formaldehyde resins.

Aminopolycarboxylic acids: A group of important organic complexing agents which are important in the water softening applications. Ethylene diaminetetra acetic acid (EDTA) and Nitrilotriacetic acid (NTA) and their sodium salts are its examples.

Amiray: Native Philippine name for the ramie fibre; used for cords, threads and fabrics.

Amoer: Name of a strong silk taffeta in many parts of Italy. Same as ***gros de tours.***

Amole: Coarse, yellow fibre, yielded by the bulb of a lily-like plant in California; used for stuffing.

Amorgis: Fine linen in ancient Greece, usually dyed purple.

Amour: Linen with round or oval damask like pattern for table use, made in Caen, France. Also called La cs d'amour.

Ammonia: A gas (NH_3), often used to refer to a solution of ammonia in water, called aqua ammonia or ammonium hydroxide (NH_4OH). Ammonium hydroxide is used for pH control, mostly where the desired pH is only moderately basic. It is used in some stripping processes for acid dyes and in rinses for reactive dye on wool.

Ammonium hydroxide: See **Ammonia**.

Ammonium persulphate: White crystals soluble upto 559 g/l in water that is used in desizing, oxidizing agent in dyeing and printing.$(NH_4)_2S_2O_8$, contains 6–8% active oxygen.

Ammonium stearate: A wax-like solid soluble in alcohol, used in foam generation in coating application ($C_{17}H_{35}COOHNH_4$).

Ammoniun sulphate [$(NH_4)_2SO_4$]: Ammonium sulphate is a chemical used most commonly with acid dyes and 2: 1 pre-metallized dyes. It decomposes through hydrolysis as the bath temperature rises, slowly releasing acid. This helps to give level dyeing.

Ammonium thiocyanate: Colourless crystals hygroscopic, readily soluble in water and alcohol. It is used in dyeing silk with leuco ester dyes, dyebath additive in copper vessels as protection for copper sensitive dye and in analytical detection of trivalent iron (NH_4CNS).

Amorphous: Describing a solid that is not crystalline, i.e. one that has no long range order in its lattice. Many powders that are described as 'amorphous' in

fact are composed of microscopic crystals, as can be demonstrated by X-ray diffraction. Glass is an example of true amorphous solids.

Amount (in textile testing): A measure of the thickness or pneumatic density of the test beard, proportional to the number of fibres present at various distances from the comb(s).

Ampholyte: A substance that can act as either an acid, in the presence of a strong base, or a base, when in the presence of a strong acid.

Ampholyte ion: See **Zwitterion**.

Ampholytic surface active compounds: Surface active compounds possessing two or more functional groups capable of ionization in aqueous solution which as a consequence, depending on the conditions of the medium, confer anionic or cationic properties on the product. In the broadest sense, this ionic behaviour is analogous to that of the Amphoteric compounds.

Amphoteric: Describing a compound that can act as both an acid and a base (in the traditional sense of the term). For instance, aluminium hydroxide is amphoteric: as a base [$Al(OH)_3$] it reacts with acids to form aluminium salts; as an acid [H_3AlO_3] it reacts with alkalis to give aluminates. Oxides of metals are typically basic and oxides of non-metals tend to be acidic. The existence of amphoteric oxides is sometimes regarded as evidence that an element is a metalloid. Compounds such as the amino acids that contain both acidic and basic groups in their molecules can also be described as amphoteric. Solvents, such as water, that can both donate and accept protons are usually described as amphiprotic.

Amphoteric surfactants: These form a minor group of amphoteric agents that are used mainly as lubricants, dyeing retarders and softeners. They may have both cationic and anionic sites in the same molecule, depending upon the pH of the solution. In acidic solution, some of these products will be cationic but become anionic at higher pH. At pH values close to their isoelectric point, they exist as zwitterions but are least effective as surfactants under these conditions. These chemicals have excellent stability in acidic and alkaline solutions and little sensitivity to salts.

Amritsar: Large size Indian wool rugs made in Persian designs with heavy pile.

Amritsar silk: Very thick, close and strong, and quite free from vulgar gloss of the fraudulently sized European silks made in Amritsar, India. Today Amritsar is no longer a weaving hub anymore. In earlier days, it produced many types of cloths, the two most popular types were called daryai (plain like sea or dariya) and gulbadan (striped) that featured largely scarlet stripes.

Amylase: An enzyme which catalyses the breakdown of starch. Used in desizing process, it converts starch into water soluble sugar. See **Alpha and Beta Amylase**.

Amylose: A starch made of long unbranched chains a-D-glucopyranose [which is quite similar to glucose ($C_6H_{12}O_6$), the "a" should be the Greek letter alpha]. Amyloseis a linear polymer, molecular weight range 100,000–300,000, found in the interior of the starch granule and accounts for 19 to 26% of the weight. It is soluble in hot water; however, when the solution is cooled, it will form strong hydrogen bond between adjacent chains making it difficult to re-solubilize.

Amylopectin: A starch made up of long branched chains of a-D-glucopyranose(which is quite similar to glucose ($C_6H_{12}O_6$). Amylopectinis the major component of starch and comprises the outer sheath of the granule. A highly branched, high MW polymer (1.6M), less water soluble than amylose.

Amylose: A polysaccharide consisting of linear chains of between 100 and 1000 linked glucose molecules. Amylose is a constituent of starch. In water, amylase reacts with iodine to give a characteristic blue colour.

Anabasses: Blue and white striped woollen covers.

Anacostas: Fine all-worsted English dress goods, woven in two-and-two twill with a weft face, as the number of picks is much higher than the number of ends. It is woven in grey and dyed in the piece.

Anacoste or Anacote: Worsted serge made in twill weave in France and Germany that is given a very smooth finish, used by religious orders for clothing. An inferior quality made in Netherlands is known in Japan as Saaij.

Anadendron: Very strong bast fibre of a plant in the Andaman Islands, used for nets and bowstrings by the natives.

Anaerobic contact process: Anaerobic activated sludge process: Industrial waste-water with high BOD can be treated by an anaerobic suspended growth process. The waste-water is fed into a completely mixed anaerobic digesterwhich is followed by a sedimentation or flotation tank from which the sludge is returned to the digester.

Anaerobic bacteria: The bacteria, which can live in the absence of oxygen. Sewerage sludge can be reduced to hydrocarbons by anaerobic bacteria in digestion towers in the absence of oxygen.

Anaerobic bio-degradation: Biological degradation by anaerobic bacteria in the absence of oxygen.

Anaerobic digestion: The breaking down of complex organic material into simpler compounds by anaerobiosisas in anaerobic sludge digestion.

Anaerobic process in effluent treatment: They are biological treatment processes that occur in the absence of oxygen. Bacteria that can survive only in the absence of any dissolved oxygen are known as obligate anaerobes.

Anaerobic sludge digestion: The anaerobic digestion of waste-water sludge. It is common to maintain a temperature of around 35°C (mesophilic digestion). The process may be operated as a single stage process (e.g. slow rate anaerobic sludge digestion). But it is normally a two stage process (sometimes known as high rate anaerobic sludge digestion) with the heated primary digestion tank mixed either mechanically or by pumping the sludge gas back through the digester or by pumping around the digesting sludge. Most of the digestion takes place in the primary digester. Primary digestion is followed by an open unheated tank for secondary digestion, which allows the digestion process to finish and the digested sludge to settle and thicken. The design of the primary tank is either on retention time (e.g. 15 days) or on the loading of volatile suspended solids, VSS (e.g. 1.5 kg VSS per day per m^3 of tank). Complete digestion reduces the volatile solids in the raw sludge by up to 70%. This is equivalent to a 50% reduction in the total sludge solids, assuming that 70% of the raw sludge solids are volatile. Many of the problems of operating anaerobic digestion arise from the difficulty of maintaining an adequate population of methanogenic bacteria. They are seriously affected by small quantities of toxic materials in the sludge. If the methanogenic bacteria are killed, the sludge is left in an obnoxious half-digested state. Starting an anaerobic digester can be difficult and pH control is critical to enable the methanogenic bacteria to flourish. The ratio of the concentration of organic acids to total alkalinity(both expressed as equivalents per litre) should be under 0.5, preferably about 0.2.

Anaerobic sludge digestion tank (a.s. digester): A tank for anaerobic sludge digestion. It is normally heated to around 35°C (mesophilic digestion) or possible 55°C (thermophilic digestion). The sludge gas is collected and used as a fuel to heat the sludge. Primary tanks usually have scum breakers and a roof that may be floating or fixed. If the roof is floating, it forms a gasometer to hold the methane. The primary digester normally is mixed by recirculating either the sludge or the gas or both. Sludge is heated by circulating it through an external heat exchanger. Tanks are usually circular, not less than 7.5 m deep at the centre or less than 6 m diameter, but up to 35 m diameter and 14 m deep. If a floating roof is provided, it has to be gastight round the rim where it meets the tank wall.

Anaerobic suspended growth process: In waste-water treatment, a process in which anaerobes are suspended and mixed with the waste-water in an

anaerobic reactor. Examples include anaerobic contact process, anaerobic sludge digestion, sequencing batch reactor, up flow anaerobic sludge blanket.

Anaerobic treatment (a. biological t.): Any treatment process that uses anaerobes to remove unwanted organic or inorganic compounds. In the treatment of waste-waters, the processes can be divided into anaerobic suspended growth process (e.g. up flow anaerobic sludge blanket) or attached growth process such as the anaerobic filter.

Analao: Philippine name for a cordage fibre.

Analogous colours: Colours, which appear close to or adjacent to each other on a **colour wheel**.

Ananong: A Philippine cordage fibre.

Anaphe silk: Also called African silk, produced by a silkworm of the Anaphe family (Africa) which feeds on fig leaves. Groups of these caterpillars make large nests and make individual cocoons inside. The nests and cocoons are made of silk. Anaphe silk is very fine and processed into bourette and schappe silk.

Analysis of variance (ANOVA): A procedure for dividing the total variation of a set of data into two or more parts, one of which estimates the error due to selecting and testing specimens and other part(s) possible sources of other variation.

Anatase: One of the three naturally occurring Titanium Dioxide. Used as white pigment in textile printing.

Anatolian: Long and medium fine wool, yielded by the caraman sheep of Anatolia. The sheep has a very heavy and flat tail. The wool is used for carpets.

Anatolian carpet: Oriental carpet originating from interior Asia. They are mainly based on geometrical designs with highly stylized plant motifs in vivid fresh colours. Figural motifs are absent.Principal regional varieties are Bergama, Brussa, Dermirchi, Ghiordes,Hereke, Kayseri,Konya, Kula, Ladik, Mekri,Milas, Mudjur, Nigde, Panderma and Yuruk carpets.

Ancelia: Union dress goods of cotton thread warp and mixed wool yarn filling, forming patterns.

Anchali: A wide ribbon-like fabric, made in India.

Anchusin: A red dye from the root of the ***alkanet*** which is also referred to as ‘anchusa’.

Andalusia: Medium fine wool from Spain.

Anderson: Very fine gingham made in Scotland.

Anemone: A pale violet.

Angiaiangika: Short and tight-fitting bodice worn by women in India from early times. Literally 'covering for the body'.

Anglaise: Plain coloured French serge, made with eight ends and four picks in a repeat.

Angle blade: Used for applying lacquer layer in screen production.

Angle of incidence: (1) The angle between a ray falling on a surface and the perpendicular (normal) to the surface at the point at which the ray strikes the surface; (2) The angle between a wave-front and a surface that it strikes.

Angle of reflection: **(**1) The angle between a ray leaving a reflecting surface and the perpendicular (normal) to the surface at the point at which the ray leaves the surface; (2) The angle between a wave-front and a surface that it leaves.

Angle of refraction: **(**1) The angle between a ray that is refracted at a surface between two different media and the perpendicular (normal) to the surface at the point of refraction; (2) The angle between a wave-front and a surface at which it has been refracted.

Angleterre: Highly finished silk taffeta made in France.

Angleterre bars: Filling in places in modern point laces, consisting of lines of threads crossed at right angles with knots or spots formed by a separate thread at each crossing.

Angleterre edge: A needle-point edging to braid or cordonnet; made with one line of point de Bruxelles loops.

Angola: (1) Yarn composed of cotton and wool; (2) Twilled, red cotton cloth; (3) A thick, soft twilled and napped woollen over-coating.

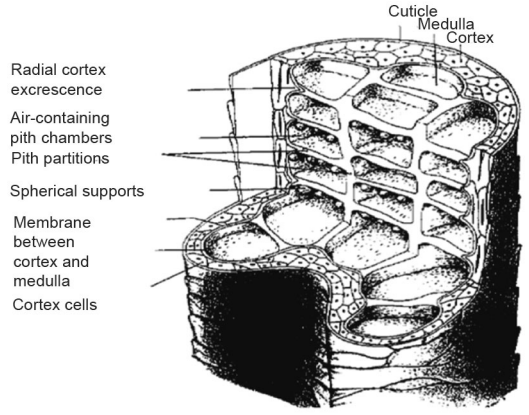
Angola brocade: A highly finished English worsted dress goods of the 19th century, woven in coloured patterns; obsolete.

Angola cloth: Diaper cotton of cream colour with rough face, used for embroidery.

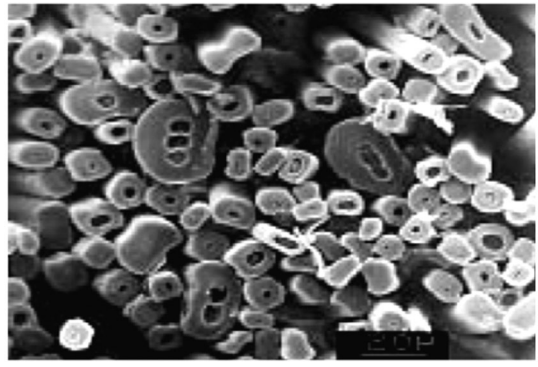
Angora: (1) Angora goat hair or mohair and angora rabbit hair, although the latter is a misnomer. Angora goat hair is classified as a speciality wool fibre, which under wool labelling act is classified as wool. A 100% mohair fabric may be called wool. Angora rabbit fur, under this act is classified as hair.

(2) Woven and knitted fabric made out of angora wool. Fabrics composed solely of blends containing this animal hair are also falsely described as Angora. Used for high quality outer wear, knitwear and hand knitted articles.

(3) Hair from the angora rabbit. Often blended and mixed with wool to lower the price of the finished article or to obtain fancy or novelty effects, various weaves and knitted.



Angora fibre morphology



Angora fibres in cross section

Very fine, light weight, extremely warm and fluffy. Has a tendency to shed and mat with time. Must be designated as angora rabbit's hair. Uses: Used mostly in knit wear – gloves, scarves, sweaters, etc., for children and women. Also blended with wool in dress goods and suits to give a softer feel.

Angora cashmere: Soft, light, twilled mohair dress fabric.

Angora goat hair: Mohair.

Angora rabbit hair: Hair of Angora rabbits grown in Europe and East Asia. Can be considered as the finest of the hairs. The annual yield can be 250g per rabbit in two to three shearing. The hair is mostly pure white, lustrous and silk

like. For technological reasons these fibres are spun with wool, a percentage of synthetic fibre or cotton. Chemically Angora fibres are keratin, like wool.

Angstrom: Symbol Å. A unit of length equal to 10–10 metre. It was formerly used to measure wavelengths and intermolecular distances but has now been replaced by the nanometre. 1 Å = 0.1 nanometre. The unit is named after Anders Ångström.

Anhydride: A compound formed by removing water from an acid or, less commonly, a base. Many non-metal oxides are anhydrides of acids; for example, CO_2 is the anhydride of H_2CO_3 and SO_3 is the anhydride of H_2SO_4.

Anhydrous: Without water. Many 'dry' chemical may contain some water as a part of the crystal structure. In addition, this can often be compensated for making up formulas, it is often more convenient to use chemicals that contain no water, that is that are anhydrous.

Anidex fibre: A manufactured fibre in which the fibre forming substance is a long chain synthetic chain composed of at least 50% by weight of one or more esters of a monohydric alcohol and acrylic acid (CH_2=CH-COOH). In 1970, anidex fibres were introduced as an elastomeric fibre by Rohm and Haas with the trade name Anim. Anidex fibres are defined as fibres containing polymers that are at least 50%of one or more polymerized acrylate esters. Anidex fibres are formed through emulsion copolymerization of acrylate esters with reactive cross-linkable co-monomers such as -methylolacrylamide. The resulting copolymer emulsion is mixed with a filler and wet spun to form a fibre which is heated to cross-link the polymer chains and provide the necessary elastomeric properties. The morphology and elastomeric action of the fibre resemble spandex and rubber, but anidex generally has a lower elongation at break than these fibres. It has a round cross section. The fibre has a specific gravity of 1.22 and a moisture regain of 0.5% under standard conditions. Anidex is reported to be more resistant to heat, light and chemicals than either spandex or rubber. Otherwise, the fibre possesses end-use properties very much 1ike those of spandex. Anidex fibres apparently did not have sufficient differences in properties to become an economic success and are no longer being produced.

Anil: The blue dye now called **indigo**. 'Anil' comes from the Sanskrit word '*nila*' meaning dark-blue which is also the root of the word 'lilac'.

Aniline: C_6H_7N; also called aniline oil, benzeneamine, aminobenzene. Aniline used to be a very commonly used chemical in the synthesis of dyes. Because of toxicity, aniline has been replaced with other compounds for most dye synthesis.

Aniline black: Insoluble oxidation dye from aniline produced on the fibre (mostly on cotton) from individual soluble components. Aniline black is the best black and unsurpassed in depth and bloom. Chlorates and chromates are used as oxidizing agents and ferrocyanides, ammonium vanadate and copper salts as oxygen carriers. During the development acid liberated which can cause damage to the fabric under inappropriate conditions. Also called single bath black, oxidation black, steam black, hanging black, Prud'homme black, Prussiate black, Koechlins black, diphenyl black.

Aniline dyes: Any of a large class of synthetic dyes made from intermediates based on or made from aniline. The term is still in use for individual brands.

Aniline salt(aniline hydrochloride): $C_6H_5NH_2$– HCl, MW 129.5. Colourless, large crystalline plates or lumps which turn dark green on prolonged storage, m.p. 192°C, readily soluble in water and alcohol. Often contains free hydrochloric acid. May be identified by the production of a green colour with methyl violet test paper.

Aniline sulphate test: For the identification of hemp resp. jute fibres: Place the fibres in a 1: 20 solution of aniline sulphate (on a boiling water bath) for 20 min, rinse and dry. The fibres are stained – a) pale yellow = hemp, or b) intense golden yellow = jute. Pure cellulosic fibres (including linen) remain unstained.

Animal fibres: Fibres of animal origin such as – (a) wool (sheep) (b) Specialty hair fibres like alpaca, camel, cashmere, guanaco, llama, mohair (angora goat), vicuna, (c) fur fibres like mink, muskrat, angora rabbit.

Animal fibres and filaments: Fibres and filaments (generally hair, fur and cocoon materials) taken from animals for the purpose of weaving, knitting or felting into a fabric. Typical animal fibres include wool, mohair, Ilama, alpaca, cashmere. Camel hair, cowhair, fur, horsehair, vicuna. The cocoon material is silk. All are nitrogenous substances. Wool and other hair fibres come in staple lengths. The original forms of silk are parallel filaments several thousand yards long.

Animal hair fibres: Angora, mohair, cashmere and other fine animal hair fibres, occupy a significant place in the textile fibres. Used mainly in high fashion garments.

Aniodic oxidation: A problem which used to occur in package dyeing. Metal tubes or package spindle used to get oxidized due to anodic action of two different metal used, i.e. metal used in machine and metal used in the tubes. This causes a higher consumption of reducing agent. Nowadays, this is not a major problem as machines are invariably made by stainless steel.

Anion: A negatively charged ion, formed by the addition of electrons to atoms or molecules. In electrolysis, anions are attracted to the positive electrode or anode. Compare ***Cation***.

Anion exchange: Replacement of acid radical ions such as NO_3^- by OH^- (hydroxyl ions) in water by using ion exchange.

Anionic-cationic compounds: Electrically neutral compounds.

Anionic: Those that develop a negative charge on the water solubilizing end-function in a manner similar to emulsifying agents.

Anionic dye: A dye which dissociates in water to form negatively charged colour ions.

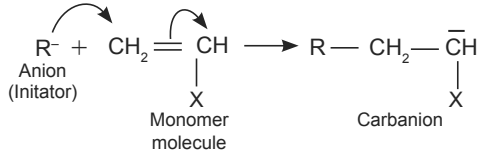
Anion exchange capacity: The ability of a material or soil, etc., to exchange anions. In soil, it is small as compared to the cation exchange capacity.

Anionic exchanger: These are high molecular weight, polyvalent bases or their salts which have basic, negatively-charged exchange ions, i.e. interchangeable OH groups against anions or end-groups suitable for the formation of acids. The principle of the exchange reaction is as follows:

$$A - OH + HCl = A - Cl + H_2O$$

See **Ion exchanger**.

Anionic polymerisation: In anionic polymerisation, a negatively charged ion attacks on 1t electron pair of the monomer molecule and pushing it as far away as possible, i.e., to the end of the molecule. Simultaneously, it forms a sigma bond with the monomer unit. At the same time, a carbanion is also formed. This is represented as follows:



Anionic resin: An Ion-exchange material that can exchange anions, such as Cl– and OH–, for anions in the surrounding medium. Such resins are often produced by the addition of a quaternary ammonium group [$–N(CH_3)_3^+$] or a phenolic group ($–OH^–$) to a stable polyphenylethene resin.

A typical exchange reaction is:

$$Resin\text{-}N(CH_3)_3 + Cl^- + KOH \rightarrow Resin–N(CH_3)_3 + OH^- + KCl$$

Anionic resins can be used to separate mixtures of halide ions. Such mixtures can be attached to the resin and recovered separately by Elution.

Anionic retarders: These are retarding agents with dye affinity and are used in the dyeing of polyacrylonitrile fibre with cationic dyes.

Anionics: Short form for anionic surface active agents.

Anionic softeners: Anionic softeners and/or surfactant molecules have a negative charge on the molecule which come from either a carboxylate group (–COO–), a sulphate group (–OSO_3–) or a phosphate group (–PO_4–). Sulphates and sulphonates make up the bulk of the anionic softeners. Some phosphates and to a lesser extent the carboxylates are used as softeners. Anionic softeners impart pliability and flexibility without making the fabric feel silky. They are used extensively on fabrics to be mechanically finished, e.g. napped, and sheared or sanforized. A good napping lubricant, for example, provides lubrication between the fabric and the napping wires yet at the same time provides a certain amount of cohesiveness between fibres. If the fibres are too slippery, the napping wires will overly damage the yarn. Sulphonated oils (e.g. Turkey red oil) impart a soft raggy hand, sulphonated tallow a full waxy hand and sulphonated fatty esters a smooth waxy hand.

Anionic surface active agents: Surface active compounds having one or several functional groups which ionize in the aqueous solution to form negatively charged organic ions that are responsible for surface-activity.

Anionic surface active compounds: See **Anionic surface active agents**.

Anionic surfactants: Surfactants that are anion active. This is the major group comprising almost 70% of commercial surfactants. Anionic surfactants are invariably the sodium salts of either aliphatic or aromatic sulphonic acids (R–SO_3Na, sulphonates), or of the sulphuric or phosphoric acid esters of alcohols (R–O–SO_3Na, sulphates; R–O–PO_3Na, phosphates). They are derived from both natural and synthetic chemicals.

Anisomophic: Non-uniformly configured. Opposite to ***Isomorphic***.

Anisotropic: Having different properties in different directions. For e.g., the capacity of a dye in solution to dye only the fibre surface or only certain internal regions of the fibre due to various reasons.

Ankle: The joint between the foot and lower leg.

Ankle girth: The circumference of the leg over the greatest prominence of the ankle.

Annatta (annotto, arnotto, roucou): A dye obtained from the pulp surrounding the seeds of the *Bixa orellana*; chiefly used in dyeing silk an orange colour, but is of a fugitive nature.

Anodendron: Very tough but fine, bast fibres of a climber (*Anodendron panic-ulatum*) in southern India and Sri Lanka; used for ropes.

Anomaloscope: An optical instrument used for the testing and classification of anomalous and defective colour vision.

Anoncillo: Fibre yielded by the bark of a species of the sour-sap in Venezuela.

Anorak: A lined and hooded hip-length jacket designed to give a degree of protection bad weather.

Anoxic denitrification: The process by which nitrate nitrogen is converted biologically to nitrogen gas in the absence of oxygen. This process is also known as aerobic denitrification.

Anoxic filter: A denitrifying filter in which a tank is filled with media (typically plastic media) and flooded, through which is fed a nitrified effluent and a source of organic food. The bacteria that grow in the filter metabolise the organic material and use the oxygen in the nitrate as the oxygen source and N_2 is produced. The effluent is thereby denitrified. Denitrification of a nitrified effluent can be achieved by locating an anoxic filter after secondary sedimentation (i.e. postanoxic). Methanol or other carbon sources may be added to the secondary effluent to act as an organic carbon source for the denitrifying bacteria. Anoxic filters can be used in the pre-anoxic location, i.e. the filter before the main biological treatment, for the removal of BOD and oxidation of ammonia. The nitrified waste-water from the main biological treatment stage is recycled back to the anoxic filter and the organic food for the denitrifying bacteria is from the BOD in the settled waste-water. Various designs of pre- and post-anoxic filters are used and the waste-water flow through the tank may be upward or downward. The depth of media is typically between 1.5 and 2 m. Some designs may require a hydraulic surge for a few minutes through the filter every few hours to stop a build-up of nitrogen gas becoming trapped in the filter and some designs may require a backwash every few days. Compare ***Anaerobic filter***.

Anoxic process: The process by which nitrate nitrogen is converted biologically to nitrogen gas in the absence of oxygen.

ANS unit: A colour difference unit in the Colour Difference Formula of Adams, Nickerson and Stulz.

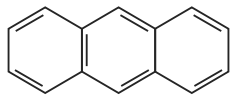
ANSI: American National Standards Institute, New York. ANSI represents the United States member body in the ISO. The purpose of ANSI is to coordinate voluntary standards development and use in the United States and to serve as liaison between standards organizations in this and other countries, through the ISO.

Antelope: The colour of the antelope. With regard to the fact that there are so many different varieties of antelope and that they have a wide range of different colourings and markings, this definition is not very helpful! Perhaps referring to dusky-brown beige or a pale bronze-gold colour.

Antelope cloth: Used for embroidered waistcoats and embroidery foundation in England. There are small pinholes in the cloth placed at equal distance from each other, through which the yarn is put.

Anterine or Anterne: 18th century fabric in England made of worsted and silk or mohair and cotton.

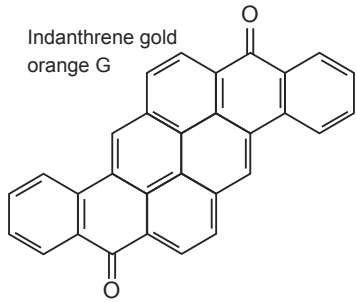
Anthracene: A white crystalline solid, $C_{14}H_{10}$; r.d. 1.28; m.p. 215.8°C; b.p. 341.4°C. It is an aromatic hydrocarbon with three fused rings (see formula), and is obtained by the distillation of crude oils. It is a linear condensed homocyclic hydrocarbon. It forms colourless plate-like crystals which sublime readily and have a blue-violet fluorescence. Used in the manufacture of Anthraquinone, the parent substance of many synthetic dyestuffs.



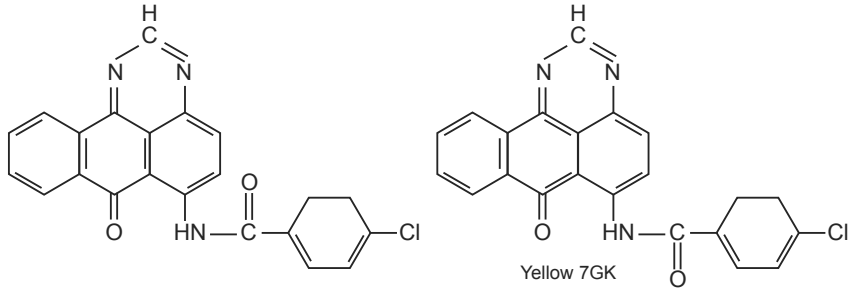
Antherea: Collective scientific name for various wild silks of Japan, China and India.

Anthistirta: Stem fibre yielded by a grass (*Anthistiria arundinacea*) in north-western India, used for cordage.

Anthanthrone: Anthraquinonoid dyes with a pyrene structure. Its example is the dye manufactured by the bromination of anthanthrone.

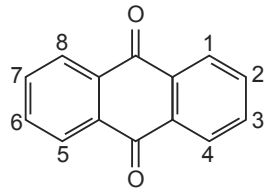


Anthrapyrimidine: An anthraquinone dye-class coming under derivatives of anthraquinone with a fused ring structure. It can be manufactured by acylation of 4-amino-1,9-anthrapyrimidine with p-chlorobenzoyl chloride in the presence of pyridine.



Yellow 7GK

Anthraquinone ($C_{14}H_8O_2$): A colourless crystallinequinone; m.p. 154°C. It may be prepared by reacting benzene with phthalic anhydride. Also oxidation product of Anthracene. Outstanding reduction catalyst which increases activity of reducing agents. Used in the discharge printing of cationic dyes, mordant dyes naphthols and bromoindigo. A common arrangement of the carbonyl groups in coloured molecules gives rise to a group of compounds known as *quinones*. These may be defined as cyclohexadienediones, i.e. compounds containing two ketone carbonyl groups and two double bonds in a six-membered ring. The simplest quinones are *o*- and *p*-benzoquinones, respectively.

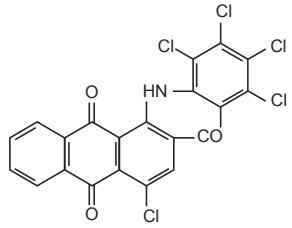


Anthraquinone dyes: Dyes which are derived from anthraquinone. They belong to *qunonoid* class of dyes. Anthrquinone derivatives are coloured when at least two further donor substituents are (-OH, -NH_2) are present in addition to the basic anthraquinone structure. Anthrquinone is one of the most important dye-classes. The detailedclassification of anthraquinone dyes are as follows:

1. *Chain-substituted and chain-linked anthraquinone derivatives* –
   (a) acylaminoanthraquinones, (b) Anthraquinonylaminotriazine,
   (c) Anthraquinonylamine or anthrimide.
2. *Derivatives of anthraquinone with a fused ring structure*–
   (a) Anthraquinone-thiazole, (b) Anthraquinone-oxazole,
   (c) Anthraquinone-carbazole, (d) Anthraquinone-acridone,
   (e) Anthraquinone-N-hydroazine or indanthrone, (f) Flavanthrone,
   (g) Anthrapyrimidine, (h) Acedianthrone.

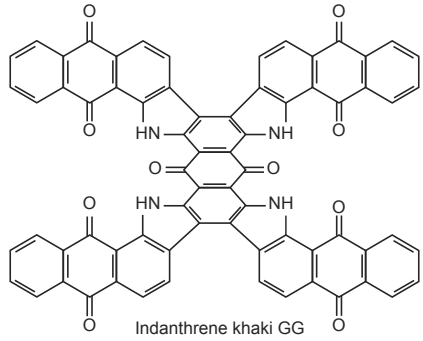
3. *Anthraquinonoid dyes with a pyrene structure–*
   (a) Pyranthrone, (b) Anthanthrone, (c) Dibenzpyrenequinone.
4. *Anthraquinonoid dyes with a perylene structure –*
   (a) Dibenzanthrone or violanthrone, (b) Isodibenzanthrone or isoviolanthrone.
5. *Benzanthronoid vat dyes–*
   (a) Thiobenzanthrone, (b) Benzanthronylpyrazole-anthrone,
   (d) Benzanthronyl-aminoanthraquinone.
6. *Naphthalene derivatives–*
   (a) Naphthoylene-benziminazole, (b) Naphth-oquinone.

Anthraquinone-acridone: An anthraquinone dye-class coming under derivatives of anthraquinone with a fused ring structure. An example is the conversion of 2-methyl-1-nitroanthraquinone to 1-amino-2-anthraquinonecarboxylic acid, condensation with aniline, cyclization and chlorination.



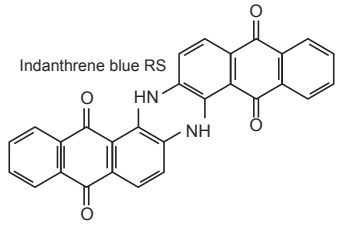
Indanthrene brilliant pink BBL

Anthraquinone-carbazole: An anthraquinone dye class coming under derivatives of anthraquinone with a fused ring structure. An example is the condensation of 4 mol. 1- amino-anthraquinone with 1,4,5,8-tetrachloroanthraquinone in the presence of copper and sodium carbonate in nitrobenzene at 205°C, 36 h. Cyclization of the pentanthrimide so formed with aluminium chloride and sodium chloride at 160°C, 2–3 h.

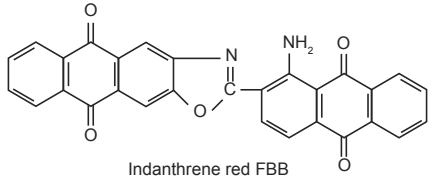


Indanthrene khaki GG

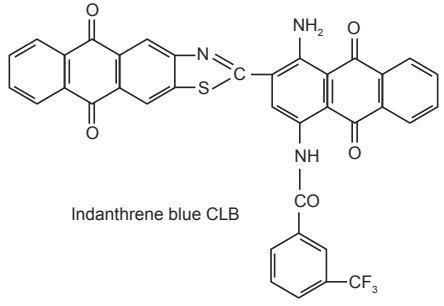
Anthraquinone-N-hydroazine or indanthrone: An anthraquinone dye-class coming under derivatives of anthraquinone with a fused ring structure. It is also called indanthrone. An example of dye is produced by the reduction of 8-nitro-1-anthraquinonesulphonic acid to 8-hydroxylamino-1-anthraquinonesulphonic acid. Conversion to indanthrone disulphonic acid followed by desulphonation.



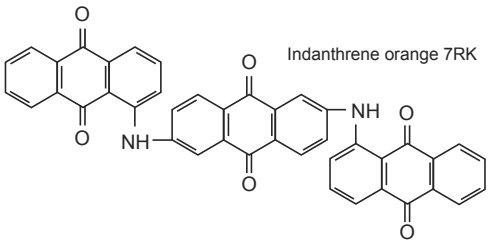
Anthraquinone-oxazole: An anthraquinone dye-class coming under derivatives of anthraquinone with a fused ring structure; condensation of 1-nitro-2-anthraquinonecarbonyl-chloride with 2-amino-3- hydroxyanthraquinone in o-dichlorobenzene (pyridine, 140°C, 5 h) to the carbonamide; oxazole ring closure in 90% sulphuric acid, 90–105°C, 2 h. Substitution of the nitro group in 15% ammonia at 125°C, 12 h.



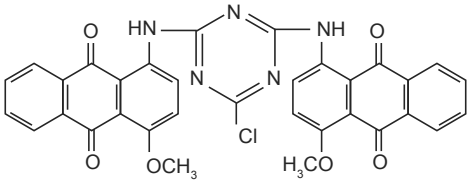
Anthraquinone-thiazole: An anthraquinone dye-class coming under derivatives of anthraquinone with a fused ring structure. An example is the condensation of 1-amino-4-nitro-2-anthraquinonecarboxylic acid with 2-amino-3- chloroanthraquinone. From the mercaptan, cyclize, reduce and acylate with m-trifluoromethylbenzoyl fluoride.



Anthraquinonylamine or anthrimide: An anthrquinone dye-class coming under chain-substituted and chain-linked anthraquinone derivatives. An example is condensation of 2,6-dichloroanthraquinone with 2 mol. 1-aminoanthraquinone in the presence of cuprous chloride and sodium acetate in nitrobenzene solution.

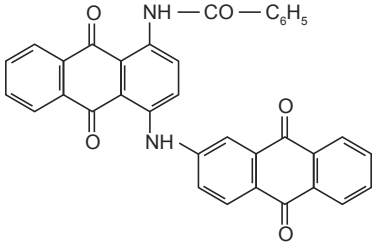


Anthraquinonylaminotriazine: A class of dye coming under anthraquinones and classified under chain-substituted and chain-linked anthraquinone derivatives. Example: from the condensation of cyanuric chloride with 2 mol. 1-amino-4-methoxyanthraquinone.



Orange 6R

Anthrimides: Anthraquinone imines produced from at least 2 Anthraquinone groups linked by an Imido group. Anthrimide structures are present e.g., in various Indanthren and Algol dyes. Among the anthrimides dianthraquinonyl-amines), only the derivatives have achieved limited importance as vat dyes.



violet 16

Anti-corrosive: See **Corrosion inhibitors**.

Anti-crease finish: Resin finishing of cellulose for reducing creasing tendency to the lowest possible dimension.

Anti-diazotates: These are also called Nitrosamines. They are fairly stable *naphthol diazonium* salts, no longer capable of coupling in solid form and are derived from amines with very weak basic properties.

Anti-felting finish: A finish which prevents or delays felting. The typical scale structure of the wool fibre can be affected by means of different processes so that it is no longer detrimental in terms of felting. (1) Subtractive process: Hydrophilisation of the exocuticle A by oxidation of the 35% cystine there with hypochlorite results in the oxidised outer fibre areas containing cysteic acid being covered by a film of water when they are washed. This water film results in neutralizing the ratchet effect (as the innermost parameter of the felting process); (2) Additive process: masking the scales with polymers (forming a film-like cover). Their action is mainly based on the so-called "spot weld effect", i.e. the polymers, in condensing, glue the individual fibres together at their contact points (unsuitable for tops), providing good shrink-proof effects at low cost; (3) Combined process: The formation of ionised and hydrated groups in anti-felt finishing makes the fibre surface hydrophilic; at the same time, an electric double layer is produced. Both factors together reduce fibre contact in the aqueous medium, and prevent the longitudinal anisotrophy of the frictional characteristics responsible for felting from being effective on wool fibres

Anti-microbial: A term used to describe the action of growth inhibition or the destruction of microorganisms, e.g. as a property of man-made fibres which have been spun with anti-microbial compounds (Antimicrobial fibres) or as in Antimicrobial finishes.

Anti-microbial agent (in textiles): Any chemical material which kills or inhibits the growth of microorganisms.

Anti-microbial fibres: They are manmade fibres with anti-microbial properties which include: inhibition of microbial growth, prevention of pus formation, acceleration of wound healing and reconvalescence. Used in the production of bandages, medical gauze, cotton wool and tampons. Also called medical fibres.

Anti-microbial finishes: They are effectively produced on textiles by: (1) Addition of microbicidal substances to the spinning solution in fibre manufacture; (2) Modifications involving grafting or other chemical reactions; (3) The finishing of textiles with suitable active substances. Such substances are fixed on textile materials after a thermal treatment (drying and curing) by incorporation into polymers and resin finishing agents.

Anti-migration: Opposite of migration. Measures taken to influence, inhibit or prevent the undesired migration of dye by physical, e.g. drying, or chemical means by the addition of suitable products. Migration inhibitors.

Anti-oxidants (oxidation inhibitors): These compounds inhibit, or even prevent, oxidation processes (inhibitors). Antioxidants are of practical importance, e.g. in the form of a small addition to drying oils used in oil sizing to prevent the evolution of heat and attack on the fibre due to an excessively rapid self-oxidation or autoxidation. For this purpose, certain substances with OH and NH_2 groups capable of being oxidized such as, e.g. phenols, amines, aldehydes, ketones, benzyl alcohol, diphenylamine, hydroxydiphenylamine, hydroquinone, etc., are used.

Anti-slip finish: These finishes are used to avoid the shifting of crossing warp and weft threads in fabrics containing a low number of yarns or woven in open constructions to prevent the formation of holes, splitting of seams, etc., (slip resistance). Anti-slip finishes involve the application of anti-slip finishing agents by wet-processing.

Anti-foam: A chemical used to prevent/suppress the generation of foam.

Anti-house dust mite agent: Any chemical which kills or repels house dust mites.

Anti-redeposition: A product that prevents soil redeposition during washing off or laundering process.

Anti-slip and anti-snagging agents: These serve to reduce the slippage of open set-woven fabrics, to prevent the formation of ladders in warp knitted fabrics and the so-called snags in stockings and finished fabrics of fine synthetic yarns. The effect is based on the production of a thin, rough, adherent film on the fibre surface of the treated fabrics. Preparations of plastics (e.g., polyvinyls, polyacrylates, polymethacrylates).

Anti-adhesives: Special auxiliaries which are used to prevent the adhesion of hosiery material on metal formers during the post boarding process. Typical commercial anti-adhesives improve the elasticity and softness of the fabric.

Anti-bacterial agent: Any chemical which kills bacteria (bactericide) or restricts the multiplication, growth or activity of bacteria.Agents or chemicals applied on the fabric which prevents the action of bacteria on the fabric/ chemicals, etc.

Anti-bacterial finish(Anti-microbial finishes): The application of products to textile fabrics capable of preventing the growth of various microorganisms and which, therefore, also contribute to deodorizing. Such products are subdivided into Bactericides (destruction of bacteria) and bacteriostats

(inhibition of bacterial growth). Anti-bacterial finishes are effective not only against bacteria but also against Mycotoxins.

Anti-bacterial textiles: In these textiles which are grafted with antiseptic substances, the molecular chains with antiseptic agents are grafted onto the parent polymers of the raw material. The parent polymers are activated by electron discharge. In the process they open up at certain sites. The graft priming monomers are deposited at these sites. The polymer chains propagated laterally impart the bactericidal properties to the textile.

Antichlor: Any product which serves to decompose residual chlorine on the fabric following a chlorine bleach process. The residual chlorine can cause yellowness to the fabric on drying and interfere in the subsequent process like dyeing. It is very difficult to completely rinse chlorine bleach out of fabric. A rinse in a solution of antichlor, most commonly sodium bisulphite, will quickly neutralize the bleach. Other antichlors are sodium thiosulphate, sodium hydrosulphite, sulphurous acid, ammonia, etc.

Anticle finishes: Elimination of the possible loop distortion in garment pieces made from combined wool yarns during subsequent wet-processing by treatment in boiling bisulphate, sulphite.

Anti-cling finish: Finishes which will reduce the static electricity on the fabric. One way is by increasing the moisture on the fabric. These finishes are applied on fabric made from synthetic fibres in order to prevent garments from clinging to the body. See **Antistatic finish**.

Anti-cockle treatment: A mild setting treatment done on woollen knitwear to prevent distortion and cockling of the knitted structure during processing. For example: Treatment with boiling sulphite or bisulphate solutions.

Anti-cockling treatment: Elimination of possible loop distortion in garment pieces made from combed wool yarns during subsequent wet-processing (chlorine/hercosett process) by treatment in boiling sulphite or bisulphite solutions.

Anti-crease finish: Resin finishing cellulose to reduce the creasing tendency to the lowest possible dimension.

Anti-diazosulphonates: They act as components which are not capable of coupling of the type B-N=SO_3Na. After printing, this structure undergoes a rearrangement due to the action of steam or light energy into a syn-diazosulphonate which is capable of coupling with naphthols.

Anti-felting agents: Product that minimize or prevent matting and compaction of textile materials. See also **Anti-felting finishes**. In subtractive

process, hydrophilisation of exocuticle (to about 35% cystine) by oxidation by Hypochlorite. The cysteric acid thus formed holds a film of water when washed which prevents felting. In additive process, material is resin finished whereby "a spot welding effect" is formed which binds the individual fibres at their contact point which prevents shrinkage.

Anti-felting finish: Process by which the wool structure; so that it is no longer having the felting quality. Three processes are available – subtractive process, additive process and combined process. See **Anti-felting agents**.

Anti-foams: (1) In many processes, formation of foam can create problem. Anti-foams are added to the liquors and printing pastes to either reduce or prevent the foam formation. For e.g., Tributyl phosphate (TBP).

(2) An additive that minimizes the formation of bubbles within or on the surface of a liquid by reducing the forces that support the bubble structure.

Anti-foamers: See **Antifoams**.

Anti-foaming agent: See **Anti-foamers**.

Anti-foams in dry-cleaning: Anti-foams are added in dry-cleaning solvent to prevent foam formation during the distillation which can happen due to various factors such as dissolved silicones.

Anti-frosting agents: Textile auxiliaries based on alkyl aryl polyglycol ethers for the prevention of frosting. See **Frosting**.

Anti-fungal: Generic name for fungicidal and fungistatic finishes.

Anti-fungal agent: An auxiliary used for Anti-fungal finish. Any chemical that kills or inhibits the growth of fungi.

Anti-greying agent: See **Anti-frosting agents**.

Anti-greying treatment: Any treatment that prevents or suppresses the greying/ageing of the fabric/garment. See **Anti-frosting agents**.

Anti-microbial: A term used to describe the action of growth inhibition, or destruction of microorganisms.

Anti-microbial agents: Bacteriostatic, bactericidal, fungistatic, fungicidal textile protective agents. Phenolic compounds, quarternary ammonium compounds and organometallic compounds containing mercury are a few of the important anti-microbial agents.

Anti-microbial fibres: Synthetic fibres made with anti-microbial properties which include: inhibition of microbial growth prevention of pus formation, acceleration of wound healing and convalescence. Also called medical fibres.

Anti-microbial textiles: An antimicrobial agent is defined as a natural or synthetic substance that kills or inhibits the growth of micro-organisms such as bacteria, fungi and algae.

Anti-migrant: An additive used in dye or pigment mixtures to prevent undesired movement or spreading of the wet dye on fabric. Anti-migrants are also used in commercial pad-batch, pad-dry, etc., dyeing to prevent uneven shading across the width of the fabric.

Anti-migration: The measures taken to influence, inhibit or prevent the undesired migration of dye by physical, e.g. drying, or by chemical means by addition of suitable agents. Opposite to migration.

Anti-migrating agent: Textile auxiliary designed for anti-migration. See **Anti-migrant**.

Anti-migration agent: See Anti-migrating agent. Textile auxiliary designed for anti-migration. For e.g., as in pigment-pad and continuous dyeing processes.Thickeners can be used as anti-migrating agent. See **Migration inhibitors**, **Anti-migrant**.

Anti-mycotic finish: Fungicidal or fungistatic finishes.

Anti-odour finish: The microbial action on the fabric/garment along with human sweat or other matters produces bad odour on the fabric/garment or on the skin. The anti-microbial finish prevents or suppresses this action and the odour, and hence the name anti-odour finish.See **Anti-microbial finish**.

Anti-oxidant: Prolonged exposure to atmosphere results in atmospheric oxygen causing the degradation of fabric, fibre, finish, etc. An anti-oxidant is a substance that retard the deterioration (of fibre, fabric, finishes, etc.) resulting from reaction with oxygen.

Anti-perspirants: An acidic salt or some other compounds (deodorants) prevent the decomposition of perspiration in the alkaline range. Such compounds (e.g. aluminium chloride 15–30% solution) along with an anti-sceptic may be used as anti-perspirants.

Anti-pill fabric finishing: The finish which prevents or reduces the pill formation during the use of the garment. Chemicals which bind the fibres so that the movement of the fibre is reduced and hence the pill formations are used as anti-pilling agents. Sometimes bio-polishing which removes all the protruding and loose fibres from the surface of the fabric which starts the pill formation are also called anti-pill finish.

Anti-pilling process: Any process intended to minimize or prevent pilling, mainly applicable to fabric made from high tenacity, man-made fibres and

its blends. Pilling may be prevented by initial heat-setting, total shrinking, besides finishing with film forming products such as binder, resin finishing which restricts fibre migration.

Anti-pole: Philippine fibre, used for ropes and cords.

Antique bronze: A bronze colour imitative of that of very old objects; also 'antique gold', 'antique green' and 'antique red'.

Antique ivory: The yellowish-white colour of old ivory.

Antique white: A yellowish-white colour adopted as a colour name by Web page creators on the Internet with hex code #FAEBD7.

Antique satin: A reversible fabric, the right side of which resembles shantung slubbed in the weft direction. The wrong side resembles silk satin of an earlier century. Made of a mixture of various fibres.

Antique taffeta: A stiff-finished fabric in plain weave made to resemble fabrics of the 18th century. It may be made of doupion silk or synthetic fibres.

Antique lace: A term used to describe hand-made bobbin lace where heavy threads have been used. Designs are often irregular.

Anti-redeposition agent: Additional component of a washing agent for increasing the soil suspending property. Also called builders.

Anti-rotting agents (preservatives): Used in textile exposing to moisture to protect against rotting by microorganisms.

Anti-rheumatic: A term generally applied to textile fibres which are effective against rheumatism, e.g. pain relief achieved from the use of polyvinyl chloride fibres in underwear and quilt fillings. Wool also possesses anti-rheumatic properties.

Anti-shrink setting: Heat-setting.

Anti-slip and anti-nagging agents: Auxiliaries used to reduce the slippage of open set woven fabric, to prevent the formation of ladder in warp knitted fabrics and the so called snag in stockings and finished fabrics of fine synthetic and cotton yarns. Preparations of plastics (e.g. polyvinyls, polyacrylates, polymethacrylates and polystyrenes)and natural resins and silicic acids are used for this purpose.

Anti-slip finish: These finishes are used to prevent the shifting of crossing warp and weft threads in fabric containing low no of yarns or woven yarns or woven in open constructions to prevent the formation of holes, splitting of seams, etc. Suitable anti-slip finishes is film forming polymer dispersions, silicic acid, hydrosols. Addition of anti-static agents along with these products also may help.

Anti-snag finish for velvet: A finish applies on velvet and plush fabric to prevent the pile getting detached from the warp. It is almost like an anti-slip finish but involves only impregnating the backside of the fabrics with various synthetic resins.

Anti-soiling finish: Finishes designed to achieve active stain blocking. The term is also used to describe various technical measures applied in the finishing to keep soil away from textiles. Crease-resistant finishes, water and oil repellent finishes improve anti-soiling property.

Anti-soiling properties: The property of the textile material whereby they resist the deposition of dirt and stains.

Anti-staining properties: The property of the textile material to resist the deposition of oil and water based stains.

Anti-static agent: A reagent capable of preventing, reducing, or dissipating static electric charges that may be produced on textile material.

Anti-static fibres: To eliminate build-up of electrostatic charges on textiles (especially in textile floor covering) permanently anti-static polyamide or metallic fibres are used. Various polyamide fibres are available in the market with antistatic properties based on different principles; for e.g. embedded carbon particles, metallized fibres, copper sulphide deposition on the surface of the fibre, besides incorporation of antistatic agents in to the spinning solution, etc.

Anti-static finishes: Treatment of textiles (fabric/yarn) with special chemicals to increase the surface conductivity in order to prevent the build-up of electrostatic charges or to reduce the static property of the fabric/yarn. See **Anti-static fibres**.

Anti-static nylon: Anti-static nylon; for example, Celon can be produced for both knitted and woven lingerie fabrics. The latter have a greatly reduced tendency to cling and spark when worn. Static electricity can still be a problem because other factors, such as temperature and humidity, are involved. The use of propriety fabric softeners may help. See **Anti-static fibres**.

Anti-static properties: The ability of the textile material to disperse an electrostatic charge and to prevent the build-up of static electricity.

Anti-static in dry-cleaning: The anti-static agents used in dry-cleaning to prevent spontaneous ignition of spirit, increase its conductivity and prevent fires and explosions (resulting from the electricity generated due to friction or electrostatic charging). Anti-statics used includes anhydrous magnesium oleate products (magnesia soap), dry-cleaning soap, dry-cleaning detergents, etc.

Anti-static tricot: Fine synthetic jersey for lingerie and nightwear. May be named trilobal or filament.

Anti-swelling agent: Finishing agent to resist swelling-resin finishing agent.

Antron: A trademarked Nylon marketed by Du Pont co.

Antung (silk): Warp and weft of tussah greige; unlike honan silk, this fabric is produced on a mechanical loom. The fabric has affirmed lustrous appearance.

Antwerp: Belgian bobbin lace of bold patterns, similar to the Malines. Made either of separate sprigs connected with each other by brides or the pattern made in one and upon a ground. Usually plaited thread outlines the patterns. A characteristic design is the so called Potten Kant.

Antwerp blue: A greenish-blue variety of **Prussian blue**; also Antwerp brown and Antwerp red.

Antwerp edge: Needle-point edge to braid or cordonnet, consisting of one line of open buttonhole caught with a knot in each loop.

Antwerp pot lace: A bobbin lace which always had motifs of baskets or vasesof flowers as decoration.

A/O process: An adaptation of the activated sludge process that can achieve biological phosphorus removal as well as BOD removal. The two-stage process involves an anaerobic zone followed by an aerobic (oxidation) zone, which is used for BOD removal. The return activated sludge from the sedimentation tank is fed back to the start of the anaerobic zone. The first anaerobic zone is required in order to obtain biological phosphorus removal.

AOPs: Advanced oxidation processes.

AOX: Adsorbable organic halogen compounds. Important in waste-water treatment.

Ape skin (velveteen): Raised closely sheared or sanded cotton sateen or twill with short, velvety pile (imitation velvet). See also **Duvetine, Apricot skin**.

APEO: Alkyl Phenol Ethoxylates. Even though once it was thought that APEO is biodegradable, once the ecological failure was known (around 1988) this chemical was completely banned as wetting and washing agents used in textile industry.

Apparel textiles: The clothing or apparel market includes most garments that are worn.

Apparent wall thickness: The apparent width of a fibre wall as seen under the microscope. In the maturity test for cotton, the apparent wall thickness is assessed visually at the widest part of the fibres as a fraction of the maximum ribbon width.

Appearance: An object's or material's manifestation through visual attributes such as size, shape, colour, texture, glossiness, transparency, opacity, etc.

Appearance of creases: See **Crease retention**.

Appearance of textile end-products: The overall visual impression of a textile end product quantified by comparison of individual components with appropriate reference standards.

Appenzel: Swiss hand embroidery featuring loop-stitch.

Apple-green: A pale green; a colour used extensively in the making of Sèvres porcelain.

Applique lace: Any fabric where separate lace motifs are applied to a background.

Application prints: Prints where the design is printed on a white or ecru fabric. The ground colour of the fabric forms an inherent part of the design.

Applicator roller (metering roller, slop padding roller, tip roller): In coating by the reverse roll process, the roller running in the application direction from which the excess of molten polymer is doctored at each revolution, is described as applicator roller (in contrast to the metering roller which runs at a different speed against the direction of paste application).

Appliqué: A cut-out design or shape attached to the face of a textile material for ornamentation, usually of a different type fabric and/or shade.

Appliqué (in sewing): It is the process of sewing shapes to a background fabric using a satin stitch or by hand.

Appliqué carpet: Handmade non-pile carpet comprising of a base fabric to which the fabrics are stitched or are affixed by adhesive pieces of fabric and/or yarn. Used for floor covering and wall covering.

Appliqué broderie: Suisse design is embroidered on white cambric or muslin laid upon satin or silk background.

Appliqué broderie perse: Coloured pieces of chintz or cretonne, representing flowers, birds, etc., are pasted on the ground and outlined with stitches.

Appliqué lace: Needle-point or bobbin sprigs applied to a machine-made ground, as for instance, modern Brussels lace.

Apolda: Fine, printed wool shawl, made in Germany.

Apposition dyeing or deposition dyeing: A method of dyeing in which the periphery of the cross section is only dyed. In printing this may be called surface print.

Apou: Transparent Chinese fabric of great lustre, made of Ramie.

AP, USP: American patent.

Appret de laine: French for the soft and permanent finish given to mercerized Italian linings, similar to the Botany worsted Italian lining.

Apricot: The orange-yellow colour of the apricot fruit.

Apricot skin: A finish (peach skin) similar to ***Ape skin***. Usually cotton warp and Schappe silk or woollen yarn weft.

Apron checks: A cotton gingham made in simple check pattern of an equal number of white and colour threads, alternating both in warp and weft. Apron checks are designated 4 × 4, 8 × 8, etc., according to the number of threads of each colour. Used for aprons.

Apron mark: See **Decatizing mark**.

Apron rods: These are sturdy wood or metal rods, one of which is attached to the warp beam, the other to the cloth beam, sometimes by cloth aprons, more often by cords. The warp is tied to the apron rod of the warp beam before beaming and to the apron rod of the cloth beam after beaming, threading and sleying.

Aprotic solvents: Inert neutral solvents (with low dielectric constant) containing no ionisable proton in the molecule, e.g. benzene, chlorobenzene and chlorohydrocarbons.

Apta: Brown fibre gained from the East Indian Bausinia, used for tows, fishing nets and coarse cloth.

AQL: Applicable quality level.

Aqua: A light greenish-blue; a colour name adopted by Web page creators on the Internet with hex code #OOFFF. See **X11 Colour Set**. The colour aqua was one of the many different colours in which lamp-posts in Notting Hill were painted for the 1999 Carnival.

Aqua-blue: Light greenish-blue.

Aqua-fortis: An old name for nitric acid, HNO_3.

Aqua-green: A light bluish-green.

Aquaculture: The farming of fish or other aquatic animals, or possibly the farming of aquatic plants.

Aquamarine: Pale bluish-green; sea-colour.

Aquarelle: A pale bluish-green. Also a technique of painting using thin transparent watercolours.

Aquatic: Concerned with water.

Aqueous: Describing a solution in water.

Aqueous emulsion: Oil in water emulsion (O/W type).

Aqueous repellency (in textiles): The characteristic of a fibre, yarn or fabric whereby it resists wetting by aqueous liquids.

Aqueous extract: See **Extract, Aqueous**.

Aqueous extract (in wool testing): The solution obtained by digesting a material with water or with sodium chloride solution to dissolve soluble materials.

AR: Aramid fibre.

Arabian: A curtain made of netting and edged with macramé lace.

Arabian crepe: Silk crepe dyed in the piece and embroidered with dots.

Arabian lace: An ecru-coloured piece-lace corded in a darker shade. Used for curtains.

Arabian stripes: Coarse cotton fabric with blue and brown weft stripes; originated in Arabia.

Arabic gum: Gum Arabic.

Arabiennes: Fancy coloured cloth made of cotton and flax in Germany for the South American trade.

Arachin fibre: A fibre belonging to the group of manmade protein fibres derived from vegetable protein arachin which is present in peanuts.

Arachne machine: A machine for producing loop bonded non-woven. The fabric is formed by knitting a series of warp yarns through a fibre web-processed on a card.

Arain: Indian silk taffeta, made with stripes or checks.

Aramide fibre: A manufactured fibre in which the fibre forming substance is a long chain synthetic aromatic polyamide out of which 85%of the amide linkages (–NHOCO–) are attached directly to two aromatic rings. The word aramid comes from “aromatic polyamide”.

Aramide fibres: The word Aramide comes from “aromatic polyamide” (Polyaramide) and means that it is associated with polyamides that contain aromatic six carbon rings in the polymer chain.These make polyamides, which would otherwise soften and burn at 260°C max, into non-melting and temperature stable compounds of a slightly yellowish colour. They can be converted into textile fibres by a special spinning process and thus form the basis of asbestos substitutes in many application areas. They are of high

strength because the crystalline content is high due to the intensive interaction between the highly structured polymer molecules. The chemical properties are similar to those of Polyamide 6.6.

Aramina fibres: See **Urena fibre**.

Aran: Beige.

Arbaccio: Coarse homespun, made in Sardinia of native wool.

Arbascio: Stout brown cloth made of coarse wool or goat's hair, once imported to Italy, where it was used for raincoats.

Arch steamer: A continuous steamer as a mainly floor mounted, vertical, semi-circular type machine, through which the fabric to be steamed is passed over side rollers, particularly for two stage printing process.

Arcadian green: A pale yellow-tinged green colour.

Archangelsk flax: Fine Russian flax of long, soft, greyish fibres.

Archil: See **Natural dyes**.

Ardamu: Raw silk of Ghilan, Persia.

Ardas: Stout silk fabric from Persia.

Ardasse: Low-grade raw silk of Persia, manufactured in Europe into embroidery silk.

Ardassin: Fine Persian raw silk, same as **Ablaque**.

Area bonding: It is a method of bonding non-woven where adhesion takes place over the entire surface. See also **Point bonding**.

Area burning rate: Area of the material burned per unit time under specified test conditions.

Area method of landfilling: A common method of operating a landfill. The waste is deposited on the surface in layers of 2–3 m deep, compacted and, at the end of the day, covered with inert material or soil (see daily cover). The waste is often tipped into a cell.

Area-of-view (of colour measuring equipment): The dimensions of the surface area that a colour measuring instrument is capable of covering in a single colour measurement.

Aredas: Indian plain woven fabric made of a soft and lustrous vegetable fibre, yielded from a grass. See **Aridas**.

Areste: A rich gold cloth woven with elaborate patterns and used for church vestments in medieval England.

Argali long: Dark-grey hair yielded from the Argali sheep in Siberia, used for carpet yarns.

Argaman: An ancient purple dye made from the shellfish murex trunculus referred to in *Judges* viii: 26 and rediscovered in 1998.

Argent: Like silver; silvery-white colour; in heraldry a silver or white colour.

Argent- (L): Silver.

Argentan lace: French needle-point lace. Early specimens called point de France. The Argentan lace is similar to the Alencon and has the following characteristics: net ground with large patterns, made higher and bolder than the Alencon, closer toile than in Alencon, and a great variety of rich brides, especially the bride picotee, the ground is the grande bride, a six-sided mesh. See **Point de France, Toile, Alencon, Picotee**.

Argentella lace: Italian white needle-point similar to the Alencon, but with flat cordonnet. The designs consist of very delicate patterns spread over a net ground.

Argentine croisee: Former name of twilled dress goods and men's suiting made with silk warp and cotton filling, manufactured in France.

Argil: The reddish-brown colour of clay – argil being potter's clay.

Argol: The tartar deposited from wines completely fermented, and adhering to the sides of casks as a hard crust. When purified, it becomes *Cream of Tartar*.

Argos: Wool rug made in Argos, Greece.

Argudan: Variety of coarse raw cotton from China.

Argyl gimp: A woven figured narrow fabric having three series of weft and warp. Two series consists of three gimp cords laid flat; the ground or third series consists of two gimp cords and forms a plain weave. The two series if three gimp cords form a double weave raised pattern by passing through the warp every sixth pick alternately and returning over the top of the warp. The overall width is about 16 mm. Warp is usually made of rayon.

Argyle: A pattern consisting of diamond shapes of different colours knitted together in a fabric.

Argyll: Diamond-shaped design for knitted fabrics using two or more, usually three colours of yarn. Often used for jerseys and hosiery, but also incorporated into knit fabrics.

Aridas: Light-weight, plain-woven and solid coloured East Indian silk cloth of high lustre; made originally of fibres of grass-like plants.

Arimina: A long and strong stem fibre that is similar to jute, yielded by a species of agave in Brazil; used for ropes.

Aristo: See **Moquette carpet**.

Ariyalur: Fine, weft-faced silk satin, with weft stripes used for garments, made in India and Bangladesh.

Arm (in sewing machine): The upper visible part of the sewing machine above the material being sewn.

Arm length (in garment measurements): With the arm bent at 90 degrees and the clenched fist placed on the hip, the distance from the shoulder joint along the outside of the arm over to the elbow to the greatest prominence on outside of the wrist.

Armazine: Stout, plain-coloured, corded black silk, used in the 16th century for gowns and men's waists and later for scholastic gowns, hatbands, etc.

Armenian lace: Coarse and narrow crochet lace edgings.

Armenian edging: Narrow lace trimming with formal, often geometric, designs.

Armhole: The area of a garment through which the arm passes or into which the sleeve is fitted.

Armiak: Camel-hair cloth made in Astrakhan, also called Biaza; used for coats.

Armistice: Once fashionable English worsted fabric in orange, blue, black and other colours; now obsolete.

Armoured woven fine cloth: Woven metal filter fabric with the finest orifices (max 17uM); Used for filtration.

Armpit (in anatomy): The hollow under the junction of the arm and the shoulder.

Armscye (in garment): The opening in a garment for the attachment of a fitted sleeve.

Armscye circumference (in garment): With arm hanging down, the distance from the shoulder jointthrough the front-break point, the armpit, the back-break point and to the starting point.

Armstrong: A highland tartan fabric with green checks over a blue and black background with red lines.

Armure: (1) French term for a variety of fabrics that have an embossed or pebbled surface, imitating birds-eye effect, pique, stripes, crepe and ribs. Sometimes they also have a woven design. Made from any fibre or blends of various fibres, this is mainly a dress weight fabric.

(2) A great variety of dress goods made of Botany wool, mohair, cotton or artificial silk or combinations of these fibres, made in a small pebbled or embossed effect which is produced from warp or weft ribs.

Armure bosphore: A reversible silk armure fabric.

Armure cheviot: An all-wool, piece dyed black cheviot, used for dresses in England.

Armure royale: French silk dress goods and vesting, made with two sets of ply warps in different colours; 16 warps and 6 fillings in a repeat.

Armure victoria: A thin and sheer wool dress goods of dull-black background with delicate patterns; used for mourning.

Army cloth: (1) A number of woollen and worsted fabrics used for soldiers' uniforms; (2) Low-grade grey woollen fabric made in United States.

Army duck: Ducks made to Government specifications are called army ducks. A characteristic army duck is 30 in or wider, weighs about 12 oz per yard for 30 in width and has a construction of about 40 × 32 with 3/12s yarn in warp and weft. See **Duck**.

Aromatic di-acids: HOOC-Ar-COOH. Monomer used for the production of polyester by polycondensation (with this operation two molecules of same type or of different types are joined together to form macromolecules by removing simple secondary products as water, hydrochloric acid, alcohol).

Aromatic polyamide fibres: See **Aramide fibres**.

Arti: A very fine Indian cotton muslin.

Aroosha: A fairly strong fibre, yielded by a species of the Verbenaceae tree in India.

Arramas: A mediaeval brocade made of gold and silk.

Arras: (1) White French bobbin lace, similar to the Lille lace. It is of strong and close texture with straight edge and the mignonette as the characteristic pattern. See **Mignoette**, **Lille lace**.

(2) Worsted cloth that was produced in ancient times.

(3) Tapestry work made famous centuries ago in the city of Arras.

Arrasene: Chenille fabric made of silk or wool, specially made for embroidery.

Arrasene embroidery: Produced with Arrasene, by either drawing it through the cloth or laying it on the surface and catching down as in couching.

Array fibre length: A series of individual fibres that are arranged in order, based on the fibre length or a series of groups of fibres that represents essentially uniform lengths within a group and which are arranged in order based on the group length.

Arree: Bark fibre yielded by the Bauhinia racemostly in India and Bangladesh; used for ropes.

Arrindy: Raw silk fabric manufactured using eria silk which is strong, made and worn in India.

Arrow heads: The arrow head and crow's foot are ornamental fastenings used in fine tailoring as endings for seams, tucks, plaits, and at corners.

Arrow stitch: So called from the slanting position of threads forming it. Identical with the stem stitch.

Arscot: Fine woollen serge made in Belgium.

Arsenic traces (test for): Marsh's test for arsenic. Hydrogen gas is produced in a gas generator vessel by the action of sulphuric acid on zinc and the solution to be tested is poured in. If arsenic is present, arsenic hydride AsH_3 is formed which, after drying, is passed through a hot zone where the AsH_3 decomposes with the precipitation of arsenic as a dark lustrous film and hydrogen is burnt off.

Art delaine: A 19th-century fine woollen dress goods.

Arte': Term for insect fretted silk.

Art linen: A plain weave soft finished fabric used as bleached or unbleached as a base fabric for needle work.

Art muslin: A fine cotton fabric dyed or printed and finished with a high gloss; used for upholstery.

Art serge: A fine and stout worsted serge, used in England for draping and table covers.

Art square: Large variety of small or large ingrain rugs, made square or oblong with fringe at both ends.

Artichoke green: The yellowish-green colour of the artichoke.

Artificial cellulose fibres: Manmade fibres of which the basic component is cellulose; for example, viscose fibres.

Artificial daylight: Xenon lamp is nearest to daylight. Artificial daylight term is loosely applied to light sources, frequently equipped with filters that try to reproduce the colour and spectral distribution of daylight. A more specific definition of the light source is preferred.

Artificial fibres: Any class of fibres not found in nature. It consists of both regenerated and synthetic fibres. Also called man-made fibres.

Artificial flower finish: Stiff finish predominantly done on woven viscose and other fabric imitating the petals of flowers for producing artificial flowers.

Artificial fur: Woven imitation fur from woven pile fabrics (e.g. astrakhan, karakul, sealskin) high pile plush, mainly from synthetic fibres.

Artificial leather: Fabric coated with different chemicals to imitate leather like characteristics and/or leather like surface structure, e.g. embossing. Used for most of the places where leather is used. Main types: fibre, woven fabric, film, non-woven fabric and warp knitted fabric artificial leather. Artificial leather is mainly produced from polyvinyl chloride and polyurethane.

Artificial silk: Regenerated cellulose used to be known as artificial silk.

Artificial turf: A manufactured carpet having the appearance of grass.Used to replace grass in sports arenas, yard, etc.

Artist's canvas: A fabric made of cotton, linen, jute or hemp prepared with size and primed with lead specifically for artists painting grounds.

Ærugo Verdigris. Similar to **æruca**, but derived from carbonate of copper.

Arylide yellow: A light-yellow mentioned in Louis de Berniere's *Captain Corellis Mandolin* (also known as Hansa yellowand cadmium yellow). Arylide is an aromatic compound. See also **Diarylide yellow** and **Azo**.

AS: (1) Asbestos fibre.

(2) Australian standard.

As: Asbestos fibre.

Asaltus: Fleece of the wild goat and sheep in Tibet, used for shawls.

Asan: Usually a small size East Indian prayer rug with hand-knotted pile.

Asbestos: A fibrous variety of magnesium silicate. Its particular value is due to a combination of three properties, i.e. the material is stable to temperatures up to 1000°C and Above. It is resistant to acids and also forms fibrous crystals with good tensile strength. Asbestos occurs in nature in the form of fibre bundles.

Asbestos in pollution: Many types of asbestos have been used for insulating steam pipes, etc. The most dangerous type for lungs is amphibole, particularly crocidolite, which is lavender blue. Amosite, chrysotile and tremolite are also a hazard. Thorough wetting of asbestos lagging reduces the amount of dust generated when it is stripped. A slurry of asbestos should not be allowed to

dry-out but should be disposed of immediately in appropriately sealed thick bags. The USEPA MCL in drinking water is 7 MFL (million fibres/litre).

Asbestos fibre: The only mineral fibre which occurs in nature (Europe, Russia, Africa, Canada and America). It is fibrous silicate of magnesium and calcium, though often contains iron and aluminium in its composition. The colour is white to greenish. The best fibres are several inches long, rather curly, white and lustrous. The fabric is produced mainly in plain or twill weave and is used largely for industrial purposes, including protective clothing, theatre curtains, ironing board covers, and fire blankets.

ASBL: Annales Scientifiques Textiles Belges (Belgian Textile Research Centre).

Ascending design (in carpet): Pictorial carpet motifs which are mainly discernible only when seen in one direction.

Aschodur: Persian cotton fabric, dyed black with sumac and iron; used for garments by native women.

Asclepias fibre: It is a very soft and lustrous fibre, yielded by the pod of the milk-weed; used chiefly for stuffing. See **Akund**.

ASDC: Associate of the Society of Dyers and Colourists.

Aseptic: Germ-free condition; Sterile. Opposite of septic.

Ash: Whitish-grey or brownish-grey.

Asharfi buti: A popular textile design consisting of small floral discs or circles, sometimes with small patterns within the circle.

Ash content: Ash residue remaining after the complete combustion of a specific material. E.g., The ash content of the wood pulp is 0.2–0.3% and of viscose is about 0.1%.

Ashes of roses: A pinkish-grey colour.

Asiatic gums: Vegetable gums with a greater or lesser content of arabin and bassorin. Includes ghatto, karaya and shiraz gums; they are swollen in boiling water but dissolves by pressure cooking to give a thick, viscous liquid with excellent flow properties to be used in textile printing.

Ashmara: Commercial term for weak jute fibre from India.

Ashmouni: Formerly a very important variety of Egyptian cotton, has a yellowish-brown staple that is over an inch long. Little cultivated now.

Asimani: Light Indian fabric made of silk and cotton, often made with zig-zag stripes across.

Aspect ratio: (1) The ratio of length to diameter of a fibre or yarn bundle.

(2) In tyre production, the ratio of the height of the tyre to its width.

(3) In a rectangular structure, the ratio of the longer side to the shorter.

Asparagus: The green colour of asparagus; also referred to as 'asparagus-green'.

Aspero: Peruvian term for the native cotton: nailed in England, full rough Peruvian.

Asphalt: Having the brownish-black colour of asphalt; dark grey.

Asphalt overlay fabrics: See **Geo textiles**.

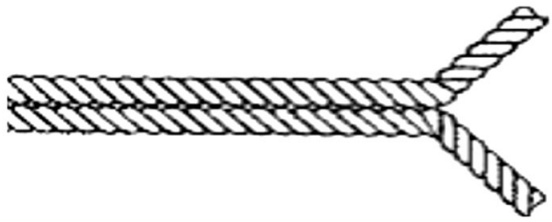
Asphodel: The rich yellow of the daffodil.

Asphodel green: A yellowish-green.

Assais: Strong fibre, yielded by the Assais palm of Brazil; used for cordage and coarse fabrics.

Assembled button: A decorative button consisting of combinations of similar or dissimilar materials, such as plastic and metal, and metal which have been joined together by such processes as gluing, swedging or metal stamping.

Assembled yarn: Two or more yarns wound side by side on to same package, but without twisting around each other are called assembled yarn.



Assembly winding: The winding two turns of twist.

Assili: Egyptian raw cotton.

Assorcebunder: The lowest grade of Indian raw silk.

Association : (Lat.: *associare* = to ally with). Chemically: combination of molecules of the same type to form molecular associates such as micellar colloids. The stability of such associates varies greatly: decomposition takes place sooner or later on heating into the individual molecules. In the case of dyes, association allows a concentration of dye to form in close proximity to the fibre, e.g. an important factor for dye exhaustion on cellulose (therefore

a high tendency to form associates = good substantivity). Dyes which form weak associates or none at all are acid dyes.

Association (degree of): Amount of association, which increases as the electrolyte (salt addition) content rises and falls with temperature for direct dyes. See **Association**.

Assouplissage: Softening of the degummed and bleached raw silk fibre in boiling water.

Astar: Muslin made in Asia, used in Turkey for turbans and underwear. It has three grades which are called dagbezd, thadirbezi and churumbezi; or best, medium and low.

Asteri: Calico used for lining in Persia.

Asticotine: Lightweight, filled, French woollen cloth; slightly elastic both warp and weft wise.

ASTM: American Society for Testing and Materials. The purpose of this organization is to develop standards on characteristics and performance of materials, products, systems and services. The standards developed by ASTM include test methods, specifications and definitions and usually deal with physical properties of materials. ASTM writes standard tests not only for textiles but also for virtually every other product such as steel, plastics, lumber, etc. For textiles, ASTM writes primarily physical-type tests such as methods for testing the tensile strength, abrasion resistance, twist determination, fibre maturity, denier and yarn count, among many others.

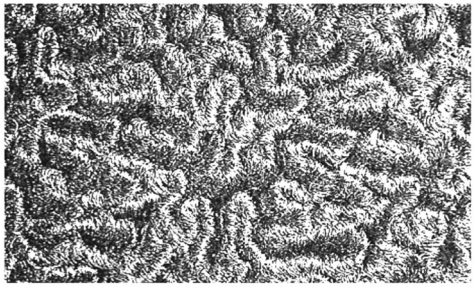
Astoli: Cotton canvas, made in Dublin according to a newly patented process. It is waterproof and good heat insulator, and does not contain rubber; it comes 56 inches wide and is used for carriage and automobile tops.

Astra Work: Consists of stars which previously have been embroidered over linen, cut out and appliquéd.

Astrakhan: (1) The skin of a stillborn or very young lamb (Originally from Astrakhan, Russia), the fine grey or black curly hair of which resemble fur.

(2) Real Astrakhan is a curly lamb's fleece (Persian). Its substitute is lambskin imitation like woven plush fabric (frieze velvet) with an uncut mohair pile warp. Also produced in jute and acetate filament yarn.

Astrakhan cloth: A thick knit or woven fabric with loops or curls on the surface. The base yarns are usually cotton or wool and the loops are made with fibres such as mohair, wool and certain synthetic fibre. The face simulated the pelt of an astrakhan lamb. Used for coats, jackets and collars. Good quality cloth contains some mohair to add lustre and curl.



Astrakhan fur: Luxurious and expensive fur taken from young lambs in the Astrakhan area of central Asia. Used for coats, hats and trimming for men and women. See **Astrakhan**.

Astrakhan yarn: Wool crimp yarn. Forced crimping can be fixed by cross-linking to make wash fast.

Astrakin: Compound woven and warp knitted fabric; base fabric of raw crêpe georgette with a different top fabric glued on. Creping produces a cloqué-like surface.

Astro-dyed: Licensed process for dyeing non-repeat effects (space dyeing) on yarns by injection of dye liquor into the thinner layers of wound packages upto a maximum of 5 colours with special equipments. Mainly used for carpet and upholstery.

AT: Technical atmosphere, replaced in the SI system by Pa (Pascal). 1 at = 0.981 · 105 Pa = 0.981bar.

Atabi or otabi: Medieval dress goods of Arabic origin, made from the mixture of silk and cotton in various colours.

Atactic polymer: A type of polymer molecule in which substituent groups or atoms are arranged randomly above and below the backbone chain of atoms, when the latter are all in one plane.

Atansaw: A wide, commodious *chogha* like garment for wrapping around the body.

ATE process: Anthrasol-thermosol development process. A dry development process for leuco vat ester dyestuffs with the use of an activator and a levelling agent for woven cellulose and polyester cellulosic fabrics.

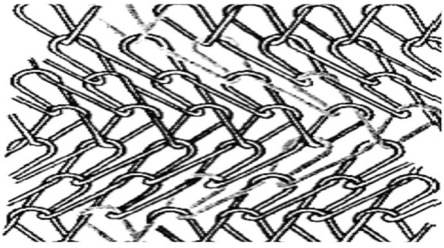
ATF: Arbeitsgemeinschaft Textiler Fachvereinigungen (Working group of German Textile Organisations).

ATI: Associate of Textile Institute (Professional qualification of the textile institute), Manchester, United Kingdom.

Atlas: (1) A term used in France, England, Germany and Austria for a highly finished fabric made with an eight-harness satin weave. Used for dresses and cotton-back lining. Originally made in India in plain weave, in stripe or floral in colours or gold.

(2) A light-weight satin lining made with silk face and cotton back. Used for dress fabrics, mainly evening wear. A less expensive Atlas made with a cotton weft is used as a lining fabric.

Atlas lapping fabrics (warp knitted): The loops at the atlas lapping fabric incline towards the same direction for a few courses and then incline towards the opposite direction for another few courses. Thus, horizontal stripes or coloured zig-zag pattern effects will occur on the technical face of the fabric.



Atlas

Atlasgradle: A linen fabric in Germany and Austria, made with five-leaf satin stripes in linen and cotton back. Used for bed linen.

Atm: Abbreviation for standard atmosphere. Earlier it was standard unit of pressure, but now in SI system it is represented by Pa (Pascal) 1 atm = 1.013300000Pa = 1.0133 bar.

ATMA: Abbreviation for American Textile Machinery Association.

ATME: Abbreviation for American Textile Machinery Exhibition.

Atmosphere for preconditioning textiles, standard: The International Standards Organization has defined the following atmosphere for this purpose and there are widely accepted for textile testing and specifications.

Temperature ^{0}C			Relative Humidity %			Atmospheric Pressure
	Tolerance			Tolerance		
	Ordinary	Close		Ordinary	Close	
20	+/- 2	+/- 1	65	+/- 5	+/- 2	Between 860 and 1060
27	+/- 2	+/- 1	65	+/- 5	+/- 2	Between 860 and 1060
23	+/- 2	+/- 1	50	+/- 5	+/- 2	Between 860 and 1060

Atmosphere for testing: Air at ambient conditions of relative humidityand temperature in tests or experiments is conducted.

Atmosphere for testing textiles, standard: The atmosphere 20°C +/– 2°C and 65% +/– 2% r.h. at prevailing barometric pressure is widely used in various standards all over the world.

Atmospheric conditions: Generally refers to the relative humidity, barometric pressure and temperature existing at a given time.

Atmospheric fading: See **Gas fading**.

Atomiser: A high performance device which uses water jets to form a mist of water droplets for various purposes.

ATP: See **Adenosine triphosphate**.

ATPUL: l'Association Technique pour la Production et l'Utilisation du Lin et autres Fibres Liberiennes (French textile research organization for linen and other bast fibres).

Atrament, atramentum: Black ink. Any black colorant. A very dark-brown pigment described by Pliny and produced from calcined bones. In the ancient world, *atramentum librarium* was used as writing ink, *atramentum sutorium* for dyeing shoe leather and *atramentum pictorium* was used by artists as a varnish.

Atred: Black.

Atrorubent: Reddish-black.

Attached cushion (in pile yarn floor coverings): A material bonded to the backing fabric side of a pile yarn floor covering to provide additional dimensional stability, thickness and padding.

Attached growth process: Biological treatment process in which the microorganisms are responsible for the conversion of organic matter or other constituents in the waste-water into gases, and the cell tissues are attached to some inert medium, such as rocks, slags, or specially designed ceramic or plastic materials. Attached growth treatment process is also called fixed film process.

Attached upholstery fabric: The exterior fabric covering secured to a furniture unit by the furniture manufacturer or custom upholsterer.

Attalea: Wash fabric used in England for trimming sailors' suits.

Attalic: (1) Thread made with flat gold strip wound around a wool or linen core.

(2) Woven goods made of gold thread which were mixed with other fibres from Asian countries during the middle ages.

Attribute: A specific characteristic of a thing.

Attribute (in colour chemistry): Distinguishing characteristic of a sensation, perception or mode of appearance. Colours are often described by their attributes of hue, chroma (or saturation) and lightness.

Attribute data: Observed values or determinations which indicate the presence or absence of specific characteristic.

Attrition mills: Machines for reducing materials into smaller particles by grinding down by friction. In the manufacture of acetate and tri-acetate fibres, this equipment is used in shredding pulp before acetylation.

Atrous: Jet-black in colour.

Attushi: A fabric made from the bast fibre of the elm tree. It is a hard and rough fabric made by the Ainu tribe of Japan in ancient days.

Au fuseau: Name for reseau ground in laces when made on the pillow.

Au gratin: Brown – as regards the surface of food. Describing, in particular, a dish which has been cooked with cheese until it has become brown. Also applied to food cooked with breadcrumbs or in a white sauce cooked until brown. From the French, *gratiner*, to brown.

Au passe: Also called satin stitch or long stitch; used in all kinds of embroidery over any ground, the thread being worked across the material without any raised foundation.

Au portique: French flammability standard.

Aubergine: The purplish-blue of the vegetable, aubergine.

Auburn: A brownish-red or sometimes golden-brown colour, especially as regards to hair. Auburn derives from the Latin *albus*, meaning 'white' and originally indicated a yellowish or brownish-white colour. Its meaning changed during the 16th century when (perhaps because it was sometimes spelt 'abrun') it came to be associated with the colour brown.

Aucube: Wool rug made in Belgium.

Augsburg: Fine checked ginghams used to be made in Augsburg, Germany.

Aupoz: Native name in the Philippine Islands for the intermediate fibrous layer in the Musa textile; used for weaving sheer fabrics.

Auquili: Coarse bagging made in Syria; the better grades dyed blue or are partly white and always mixed with cotton.

Aur-, auri-, auro-, aurat- (L): Gold, golden.

Aures: Sort of caddis or stout twilled shorn woollen, known in France as fleuret.

Aurillac lace: A French bobbin lace, made with close patterns.

Auriphrygium: Ancient name for fabrics, usually silks, richly embroidered with gold.

Auripigment: A vivid yellow, also called *King's yellow* and *orpiment*.

Auroclavum: Gold tissue of the Middle Ages; used for robes worn by state dignitaries.

Australian crepe: A crinkled fabric, made with cotton warp and worsted filling.

Austria: A twilled silk umbrella cloth.

Autoclave: (1) A vessel in which textile material may be treated with steam under pressure. Facilities are often provided for creation of vacuum either before introduction of steam or subsequently and controlling temperature, pressure, etc., for precisely getting the reaction required to be carried out. Used in the manufacture of many fibres, dyes, and auxiliaries. E.g. vessel for polymerizing condensation polymers such as nylon or polyester above or below atmospheric level.

(2) An apparatus for carrying out certain finishing operation, such as pleating and heatsetting, under pressure in a superheated steam atmosphere.

Autoconer: Automatic cross-winding machine for rewinding yarn from spinning cops on to cross-wound packages. Electronic yarn clearers as well as automatic splicing of yarn breaks are state-of-the-art features. Both the spinning machine and the autoconer can be equipped with automated transport systems. Manuf.: Schlafhorst.

Autoleveller: An automatic device which is fitted to machine to improve the evenness of the output material. This is achieved by monitoring the mass per unit length and if necessary, changing the draft on the machine to compensate for any deviation from a present value.

Automated dye weighing and dispensing system: An example of such a system involves the use of coded plastic cards on the dye-powder containers to identify the dye to be weighed, weighing done automatically and transferred to the dissolving station or an integrated recipe print-out facility and transferring to a container with recipe and barcode to identify the colour. Such systems are designed to eliminate weighing errors, automatic inventory control with facility to get the stock any point of time.

Automatic batcher: A batching system connected to the stenter or any machine for that matter, batch changes are done without stopping the machine.

Automatic continuous laundering dry-cleaning: A system consists of an automatic washing machine plant, mechanical water extracting unit and an opening or drying unit, fully automatically controlled and technologically interlinked for non-operator assembly line laundering operations from loading to finishing.

Automatic feeder: A machine that feeds a steady supply of raw and dirty cotton to the carding machine.

Automatic jigger: Jiggers with automatic controls which automatically change direction of running, speed and regulate fabric tension. Fully automatic jiggers can now be programmed for the full dyeing cycle of the dyeing to be carried out including, filling, draining, chemical and dye additions, temperature control, etc.

Automatic lock slider (in zipper): A slider that provides involuntary, positive locking action on the chain when the pull is released.

Automatic pattern repeat system: Machine designed to give repeated patterns exactly the same as compared to the manual methods. In order to set the desired repeat length, a movable limit stop is positioned against a graduated scale and fixed. Fixing and repeating of the limit stop is carried out automatically.

Automatic reeling machine: It is the most sophisticated device for reeling silk with automatic cocoon feeding device, for effective labour saving. It has a denier control device to maintain constant raw-silk denier with the result, the evenness of silk reeled will be better.

Automatic weaving machines: It is a power driven loom on which the shuttles or pirns are changed automatically.

Automation (in processing): Automation in processing is to control and regulate equipment and processing, e.g. flow of goods, preparation of baths, dosing, temperature and treatment times, by automatic programming. Automation and control can be used in dyeing and printing. For example in the following processes:

- Temperature-time programmes
- Running partial or fully automatic bleaching
- Dyeing processes, including dye kitchens
- pH,
- Flow pressure/differential pressure
- Dosing of liquid chemicals.

Automotive textiles specifications: Textiles are used very extensively in cars; examples of their applications include tyres, hoses, tapes, nets, twines,

ropes, V-belts, noise insulation, etc., and extending to upholstery materials and carpeting. Textile interior trim in cars is not confined to needled floorcoverings and pile non-woven covers which are chemically bonded. Laminated woven and knitted fabrics are used as seat upholstery and inside cladding. Flocking also plays a major role in car headliner products.

Automobile tyre cloth: Very strong, plain woven, stout and heavy cotton fabric, made with heavy yarn of the longest staple. Used for automobile tyres.

Autumnal colours: The colour characteristic of autumn, particularly in reference to the leaves of the trees of the English countryside with their rich variety of russets, oranges, browns, yellows and reds. In North America, the amazing colour change is referred to as 'fall foliage'. The process occurs by reason of leaves in the fall being sealed off from moisture giving rise to the **chlorophyll** in them breaking down. Their green colour thus gradually becomes masked by yellow, orange and brown pigments known as **carotenoids** also present in the leaves. There are also red and purple pigments called **anthocyanins**. The red, purples and bronzes in some trees derive from the sugar produced in the leaves being trapped by the colder temperatures. See also **Erythrophyll, Phylloxanthin** and **Xanthophyll**.

Auvergne lace: French bobbin lace of no distinct character.

Auxerre: White linen bobbin lace, made in France.

Auxochrome: Auxochromes are 'salt-forming' groups of atoms whose role, rather more loosely defined, was to provide an essential 'enhancement' of the colour.A substituent group in a dye molecule having a basic or weakly acidic character which acts as a "colour intensifier" and also confers affinity for textile fibres. For e.g. –COOH, SO_3H, -OH, $-NO_3$, $-OCH_3$, $-CH_3$ and NH_2 groups. See **Chromophore**.

Auxonne: French hemp canvas, made in various widths, stripes or checked; bleached or grey. Not very popular now.

Auxy: Fine, soft knitting wool yarn made in France and used in the finest grades of women's hosiery.

Available chlorine: Chlorine available for active bleaching in chlorine compounds. In chloride of lime (bleaching powder), for example, it is the quantity of chlorine released by the action of hydrochloric acid: $CaOCl_2 + 2HCl \rightarrow CaCl_2 + H_2O + Cl_2$. Chloride of lime has an active chlorine content of 35–40%.

Available chlorine in bleaching baths (determination of): 10 ml of the bleach liquor to be tested (diluted to approx. 50 ml with water) is titrated with 0,1n arsenic acid solution until a drop of the liquid no longer turns potassium

iodide paper blue. 1 ml of 0.1N arsenic acid is equivalent to 0.003546 g of available chlorine.

Avantagee: French name for the best grade of Nankin silk.

Avasca: A coarse, durable fabric, made by the natives of Peru from alpaca; used for garments.

Avellaneous: The light-brown colour of the hazel-nut or filbert-nut.

Ave maria: Narrow French peasant bobbin lace with plaited ground and very simple patterns. The edges are made with cloth stitch. Similar to the ***Valencienne***.

Average (for a series of observations): The total divided by the number of observations.

Average degree of polymerization: Average number of monomers contained in a polymer. The average degree of polymerization is determined by osmotic methods or viscosimetry.

Average fibre diameter (in wool and other animal fibres): The average width of a group of fibres when measured on projected image.

Average molecular weight: A term used in polymer chemistry for the mean value of the entire molecular weight range.

Average stiffness: The ratio of change in stress to change in strain between two points on a stress strain diagram, particularly the points of zero stress and breaking stress.

Average toughness: See **Toughness**.

Avignon: Light French silk taffeta lining.

Avila: Spanish wool from the Province Avila.

Avocado: The green of the avocado – usually in reference to the pulp rather than the skin; also avocado-green. Perhaps from the Spanish *abocado* – a delicacy – or the Aztec, *ahuacatl*.

Avouet: Persian wool from three-year old sheep; used for rugs.

Awl: A sewing tool used for making holes in the fabric.

Awl drilling: Stacks of cut-sections of garments may be drilled or notched to guide the subsequent sewing operations. There are two drilling methods – awl needle drilling and hypodermic drilling. Awl drilling (needle drilling) uses a solid tool that rotates as it is pressed into the stack of fabric. The awl may have elements that cut a hole in the fabric stack or may simply penetrate the stack spreading or severing the yarn.

Awning cloth (tarpaulin): Coated heavy-sail cloth.

Awning stripes: (1) A design of wide even stripes;(2) A heavy canvas fabric with this design; may be yarn dyed or printed.

Axial dyeing process: Package dyeing on dyeing machines with axial liquor flow.

Axial yarn: A system of longitudinal yarns in a tri-axial braid that are inserted between bias yarns.

Axminster carpet: Machine woven carpets with cut pile in which successive weft wise rows of pile are inserted during the weaving in a prearranged colour sequence.

Aya momen: General trade term for twilled cotton fabrics in Japan, especially drill.

Ayrishke: Japanese silk brocade with flower patterns.

Ayrshire: Fine twilled woollen blanket made in England.

Azalea pink: An orange-red colour.

Azamgar: Indian fabric, made of cotton and silk in satin weave.

Azara or azera: Fine Indian muslin.

Azazul: Sheer Indian muslin, with warp stripes of wild silk.

Azlon: A generic term for regenerated protein fibres from peanut, soya bean, corn, milk, etc. They are soft and smooth and blend well with other fibres. Used for knitted garments, sportswear and coats.

Azlon fibre: A manufactured fibre in which the fibre forming substance consists of any regenerated naturally occurring proteins.

Azo-: Referring to a chemical compound which contains two nitrogen atoms with a double bond between them (–N=N–). "Azo" is used for a class of dyes based on (this) chemical structure. Azo dyes may be found among direct, acid, basic, reactive, and disperse dye classes. Dyes with one pair of nitrogen atoms azo bonded are called mono-azo. Those with two or three azo bonded pairs are called disazo (not diazo) and trisazo, respectively.

Azo dye coupling: The combination of a coupling component with a diazo compound through an azo linkage.

Azo dyes: These dyes contain the characteristic azo group –N=N– which is present to a greater or lesser degree in nearly all classes of dyes. Over half of all commercial dyestuffs belong in this general category. By varying the chemical composition, it is possible to produce acid, basic, direct, reactive, disperse and

mordant dyes containing the azo chromophore. This general group of dyes is subdivided into monoazo, disazo and polyazo dyes, depending on the number of azo groups in the dye molecule. See also **Azo-**.

Azoic bases: Coupling products for development into naphthol dyes. Azoic bases are not dyes themselves but soluble intermediate product with basic character due to the presence amino groups (NH_2) which are diazotized before use when they become capable of coupling in a similar manner to azoic salts with a naphthol component to form insoluble azo dyes.

Azoic composition: A physical mixture of an azoic coupling component and a stabilized azoic diazo component which produce, in situ, an insoluble azo colourant in both cellulosic and synthetic substrates.

Azoic diazo compound: A stabilized diazonium salt of a primary acrylamine or derivative thereof which is capable of reacting with an azoic coupling component.

Azoic dye: A term generally applied to a class of dyes based on application method, sometimes called naphthol dyes. Azoic dyes are actually synthesized inside the fibre during the process of dyeing by reacting an azoic diazo component with an azoic coupling component and are not truly dyes, but insoluble pigments.

Azoic salts: Already diazotized water-soluble coupling components of the corresponding Azoic bases used for developing naphthols.

Azores: Loosely woven, thick, long haired woollens.

B

BA cotton: A flame-retardant cotton produced by fibre modification by BAP.

Babci: A type of white sisal hemp fibre from Europe.

Baby-blue, Baby blue: A pale blue shade. 'Baby blues' is a slang term for 'eyes'.

Baby flannel: A light-weight flannel fabric used for children's garments.

Baby Irish: Fine, narrow and flat Irish crochet lace.

Baby lace: The narrow lace edging of the Valenciennes type. See **Valenciennes.**

Baby pink: A pale pink.

Baby ribbon: The narrowest ribbons, usually silk in pale blue or pink colour.

Baccaba: Very strong leaf fibre, yielded by the Turu palm in Brazil; used for ropes.

Back and free stitch: A hand stitch employed for sewing lining and pockets. It involves taking a back stitch and the running stitch before the needle is removed.

Back beam: It is the horizontal crosspiece on the back of the loom around which the warp passes on its way to the warp beam.

Back bearer: Same as **Back rest**.

Back beating: An operation which involves beating or vibrating the back side of piece-dyed carpets as they leave a drying machine. Back beating improves the appearance of acrylic pile carpets, in particular.

Back coating of carpets (carpet back coating): In the case of tufted carpets, back coating is an essential element of their construction. As a result of this process, the tufted pile is firmly bonded to the base fabric on the one hand, whilst noise reduction and thermal insulation properties are achieved on the other.

Back coating (in pile yarn floor covering): A process done on tufted carpet whereby the tufted piles are firmly bonded to the base fabric. Back coating also helps in noise reduction.

Back filling: Set of weft threads, forming the back of many modern worsted cloths. It is used to provide weight to the fabric.

Back finishing: Application of finish to the backside of the fabric for material-specific reasons. Applied on ribbons, tapes, velveteen cord and plush fabrics.

Back grey: (1) The term covers a variety of special cloths used in textile finishing operation, such as a leader cloth, end cloth, back greys and intermediate greys to facilitate the processing of fabric in jig dyeing machines, decatizing machines, steamers, roller printing machine, and in screen printing for combining with fabrics (temporary lamination) which would otherwise be difficult to print satisfactory.

(2) A fabric used in printing machine in between the printed cloth and blanket to avoid colour paste staining the blanket.

Back grey (printing): In roller printing, a gummed woven fabric which runs constantly tensioned over the printing blanket and lapping covered drum and is used to support the printing blanket and the fabric to be printed.

Back grey washing: Depending on the number of passages, coverage of print design and thickness of the textile fabric being printed, used back greys contain greater or lesser amounts of print paste residues containing thickeners, dyes and chemicals. The purpose of back grey washing, therefore, is to remove these print paste residues and make the material soft, absorbent and fit for reuse again.

Back length: The dimension on a garment taken from the centre collar attaching seam to the bottom of the garment, or in the case of a coverall, to the top of the waistband.

Back notches (in sleeve): Two notches spaced ½ inches apart on the back of sleeve saline to mark points.

Back rail: See **Back rest**.

Back rest: Also called back rail, whip roll. The bar, rail or roller at the back of a loom over which the warp threads from the beam pass. See **Cloth fell**.

Back rise: The distance on a garment from the crotch to the centre back of the waistline.

Back side of fabric: The reverse side of the fabric which can also be used as the wearing side. The side of the material that faces inward in the completed object.

Back stitch: (1) A hand stitch used to seam garment parts. So called because the needle on emerging goes back to be inserted at the end of the previous stitch.

(2) Embroidery stitch.

Method – Bring the thread through on the stitch line, then take a small backward stitch through the fabric. Bring the needle through again a little in front of the first stitch, take another stitch while inserting the needle at the point where it first came through.

(3) Embroidery stitch.

Method – Bring the thread out at the right-hand side. Take a backward stitch over three threads while bringing the needle out in front of the place where the thread first emerged. Continue in this way, working form right to left in the required direction.

Back strap: A strap across the back of a garment usually fitted with a buckle or other method of adjustable fastening and used to adjust the fit of the garment, within limits, to the wearers requirements.

Back tacking: Sewing and reverse sewing at the beginning or end of a seam to secure the stitching.

Back tanning: An after treatment to improve the wet fastness of dye or printed silk or nylon by using natural tanning agents.

Back-to-back: Finishing operation of a textile fabric on a table raising/ shearing/polishing machine on which both the sides of a fabric can be processed in one without turning or reversing arrangement.

Back waist length (in body measurements): It is measured from the most prominent neckbone down to the cord that marks ones natural waist.

Back wash: (1) Commercial term for wool washed on the back of a living sheep with cold water.

(2) In water softening or filtration treatment, back wash is a process by which a reverse flow of water through the unit is produced to remove the filtered sludge, etc., to make the unit ready for the next softening/filtration process.

Back warp: The warp, which along with the backfilling actually forms the second face (back) of the double, triple or quadruple fabric.

Back width (in body measurements): The distance from back-break point to back-break point.

Back wind (pirn winding): The final stage of pirn winding in which the full pirn continues to and revolves whilst the yarn traverse-guide eye carries the yarn from rose to the base of the pirn, whereupon the rotation of pirn is stopped. Consequently, backwind prevents lovely or slippery yarns from falling off the nose chase these reducing transports and handling problems and hence waste.

Back-break point: The location on the back of the body where the arm separates from the body.

Back coating (in textiles): An adhesive type substance applied on the back of a fabric for such purposes as locking pile yarn, etc.

Back coating (in textile floor covering): The operation of depositing bonding agent on the back of a textile floor covering to ensure its penetration into the substrate of the textile floor covering without reaching the use surface.

Back frame: The side of a fly frame on which the bobbins, from which roving is drawn into the machine, are held.

Backed cloth: A material with an extra warp or weft added for weight and warmth. Satin weave and twill-weave constructions are frequently used in the design of backed cloth because they are relatively resistant to the passage of air.

Backed cloth worsted: Backed-cloth worsteds are woven with an extra layer of warp or other filling underneath the face, usually for increased weight and bulk.

Backfilling: A solution (filler) containing various quantities of starch, china clay, talc and tallow that is applied to the backside of low cost cloth to change its hand, improve its appearance and increase in weight.

Backgrey accumulator: A system developed for large quantities of back greys in roller printing. Mainly constructed in the form of a channel accumulator on the J-box principle with capacities of 800–5000 m.

Backgrey washer: A unit for the continuous washing of back greys normally located behind or beneath a roller printing machine.

Back-grey washing machines: Normally, for washing back greys winches or heavy rope washing machines were used for back-grey washing. Open width washing machines are not that suitable due to the less agitation in these machines.

Backing: (1) A knit or woven fabric or plastic foam bonded to a face fabric.

(2) A general term for any system of yarn which interlaces on the back of a textile material.

(3) A knot or woven fabric bonded to a vinyl or other plastic sheet material.

(4) See **Carpet backing**.

(5) In woven pile floor coverings, the fabric formed by the warp and weft which supports and retains the pile yarns.

(6) A strip of material placed underside of a part of garment to act as a reinforcement.

(7) Strengthening applique or other embroidery, if the materials applied are not of the same strength as the foundation.

Backing, primary (in tufted floor covering): A coarse textile fabric into which the pile yarn is stitched and to which a back coating may be applied, or onto which a secondary backing may be laminated.

Backing fabric: (1) A support textile fabric located behind the textile artefact.

(2) A fabric to which a pile yarn is inserted, or a reinforcing layer which is adhered to the reverse side of the fabric.

Backing thickness: The distance between the upper and lower surfaces of the backing components of a finished floor covering, measured after the pile has been sheared down to the upper surface.

Backing yarn: See **Yarn**, **Backing**.

Backing (pile yarn floor covering): All materials in a pile floor-covering, other than the pile yarn.

Backing, primary, in tufted floor covering: A coarse textile fabric into which the pile yarn is stitched and to which a back coating may be applied, or onto which a secondary backing may be laminated.

Backing (secondary): (1) In tufted floor coverings a coarse textile fabric laminated to the back of a primary backing to reinforce the latter; (2) In pile-yarn floor covering – a material adhered to the backing fabric side of a pile-yarn floor covering.

Backside (in textile materials): The side of the material that faces inwards in the complimented object.

Back-sizing: See **Filler**.

Backstitch: See **Purl**. The back stitch is made by placing the needle back to the last stitch, bringing it out at the length of the last stitch, then placing the needle back into the last stitch, and so on, making the stitches follow each other without any space between. This is used in all places that are to bear great strain.

Backtacking (in sewing): Refers to the reverse feed sewing at the beginning and ending of the seam to prevent the thread from unravelling.

Backwaist length: The vertical distance along the spine from the cervical to the waist.

Backwarp: (1) The warp which, along with back filling, actually forms the second face (back) of double, triple, quadruple fabrics.

(2) Additional warp (or weft) on the back of the fabric bound or stitched to the ground structure, so that it does not interfere with the appearance of the face giving greater weight, thickness, warmth, etc.

Backwash: Reversal of a solutions flow through a filtration system. Often used as a cleansing mechanism in sand and dual media filters.

Backweft: See **Backwarp**.

Backwidth: The distance from back-break point to back-break point.

Backwinding: (1) Rewinding yarn or fibre from one type of package to other.

(2) Winding yarn as it is deknit.

Bacteria: They are the smallest unicellular microorganisms, and are only visible under the microscope with powerful magnification. They multiply rapidly by simple fission (at an average rate of one division per hour, 16 million bacteria can develop from one bacterium in a day). Types of bacteria include: (1) Spherical bacteria or coccus. These are spherical to oval in shape and 1 to2 µm in size;(2) Rod-like bacteria, including spore-forming Bacilli, with a size of 0.5 to 2, 5 : 1, 5 to 15 µm;(3) Helical bacteria: a) vibrios, curved types. Size 0.3 to 0.5 : 2 to 4 µm; b) spiral, with corkscrew-like coils. Size 1 to 3:5 to 30 µm.

Bacterial desizing: See **Bacterial diastases**.

Bacterial Amylase Unit (BAU): A measure of starch degradation as shown by the quality of an enzyme that will dextrinize one milligram of starch per minute under specified experimental conditions.

Bacterial damage of textiles: See **Microbial damage to textiles**.

Bacterial diastases: The effective enzymes (amylases and polyases) are obtained by the cultivation of subtilis and mesentericus (diastases). Bacterial diastases breakdown starch into glucose with the assistance of sodium chloride as activator. Hence, these are used in desizing of greige cloth.

Bacterial growth inhibition: See **Bactericidal finishes***;* **Phenol coefficient**.

Bacterial inhibition: Bacteriostatic action.

Bacterial resistance: Resistance to the development of visible bacterial growth and accompanying odours, resulting from bacterial degradation of fibres or soil on them, as distinguished from musty fungal odours.

Bacterial staining: See **Gram's staining**.

Bactericidal fibre: Fibre used for medical applications, socks, shoe liners, etc., in which bactericides are introduced directly into the fibre matrixes as opposed to the fibre simply having a bacterial finish applied.

Bactericide: A product capable of destroying bacteria, e.g. disinfectants or preservatives.

Bactericidal finishes: These finishes are applied on fabrics to provide the fabric with active protection against the destruction of bacteria and Mycotoxins (antimicrobial finishes). Copper naphthenate, copper-8-quinolinolate, chlorinated phenoltri-alkyl tin derivatives, etc., are normally used for this purpose.

Bacteriostat: A product with bacteriostatic properties. Doesn't necessarily mean that it kills bacteria. A stat means that it may simply be slowing growth or holding the death to growth rates of bacteria (same for fungal stats) more or less in equilibrium. It inhibits bacterial growth.

Bacteriostatic: Adjective used to describe the product or properties which prevent or inhibit the growth of bacteria.

Bacteriostatic finishes: Finishes that inhibits the growth of bacteria on textiles; also called antimicrobial finishes. See also **Antifungal/Fungicidal finishes**.

Batch card (lot card): An identification card with all the details of order number, quantity, required process, recipes, width, requirements, etc., to identify and help the processor through-out the process of the goods in an order/lot etc.

Bad cast (in silk): An abruptly increased diameter in a raw silk thread. Usually caused by the improper joining of a single cocoon filament to the thread during the reeling operation.

Bad listing: See **Cut selvedge**.

Bad temple: See **Temple mark**.

Badan khas: Fine cotton muslin once produced in India.

Baden: Stout and plain woven linen fabric made in Baden, Germany.

Baden embroidery: A contrast appliqué work done in a special way. First the patterns are painted on a fine fabric, which is usually leaves and flowers, and cut out and sewn on to a contrast colour dyed foundation fabric as an appliqué work by the edges of the leaves, and petals worked around with chain stitch and the veins with herringbone or feather stitch.

Baden hemp: Superior grade of hemp, stripped by hand.

Baden lace: Good quality of bobbin lace made in Baden, Germany.

Badger brown: The grey-brown colour of the badger.

Badla: Flat metallic wire, often silver gilt, used in brocading and embroidery.

Badlan: Indian embroidery, executed with flat gold or silver wire.

Baeta: A plain woven, loose, woollen fabric that is napped on one side; used in Portuguese and Spaniards.

Baffeta: (1) Indian plain and closely woven cotton fabric; formerly exported to and printed in Europe. Now it is largely displaced by calicoes, etc.; (2) Plain woven, bleached, or blue cotton fabric in the African and East Indian trade, in old times.

Baffle: A plate or deflector to provide flow distribution in a filter-housing. Primary functions are to provide uniform flow and to prevent erosion of pre-coat or bed and setting of body-feed.

Baft Ribbon: Consists of threads being glued together to form a flat tape without any weft.

Bafta or baftah: (1) Native name in East Africa for white cotton shirting or bleached cotton long cloth, made with a heavy size, imported from Europe and used for shirts, bed covers, and other home uses, etc.; (2) It is also the name given to a variety of dyed-cotton fabrics imported to African markets from various countries.

Bafta: An Indian term for fabric made with silk warp and cotton weft, used as dress material.

Baftowa: A very fine Indian cotton muslin.

Bag cloth: A woven cloth of inferior quality yarns, heavily sized to prevent any leakage/spillage of the material carried in the bags made using these fabrics. Used, as the name implies, for bags and sacks to hold dry goods such as flour, lentils, rice, wheat, etc. The size removed, the soft fabric can be used for dusters and as cleaning and moping cloth.

Bag duck: Duck fabric that is usually used for mail bags and other such uses is sometimes called bag ducks.

Bag sheeting: Originally, bag sheeting ranged from rather coarse fabrics upto fabrics having the texture of regular sheeting. Today, very fine fabrics such as print clothes are used as bag fabrics. For regular bag sheeting, coarse cotton yarns say from 12s to 18s are used. Construction ranges from 40 square to 60 square. Normal widths are 30 and 36 in or more and of 5–8 m per kg. The material is given heavy finish if required. The cloth is used to make bag containers for feed, foodstuffs, fruits, grain, salt, sugar, etc. Bleached bag sheeting is used as a substitute for towelling or for the household uses.

Bag strapping: Very broad stay tape; used by upholsterers to preserve selvedge.

Bagasse: Waste obtained from the sisal scraping, the pulp from the leaf fibres. Sugarcane waste after extracting sugarcane juice is also called Bagasse. Used as fuel for boilers.

Bagginess: A fabric defect especially of viscose and wool caused by excessive tensioning winding, distorted weft threads, etc., which gives rise to tight threads in weft direction and waviness in the fabric. This effect is further intensified by the influence of moisture.

Bagging: (1) A fabric woven in cylindrical or tubular form on an ordinary cam loom and is used for grain bags, bale covering, etc.

(2) (in garments) A term used to describe the undesirable bulging of fabric caused by extension at elbows, knees, etc., of a garment lacking in dimensional stability.

Baggy cloth: A fabric that does not lie flat on a cutting table, caused by section of tight or loose yarn in either warp or weft.

Baggy selvedge: See **Slack selvedge**.

Bagh: The word 'Bagh' literally means Garden. It is traditional embroidery work done by women of Punjab and Haryana in India to be gifted to their daughters and daughters-in-law at ceremonies connected with the birth of grand-children. The embroidery of a bagh often begins soon after the birth of a child.

Baghaitloni: Navajo blankets with a slit in the centre, made in a large variety of patterns.

Bagheera velvet: A piece-dyed velvet with a rough surface. It is used for outer wear as the rough surface makes it largely uncrushable.

Baghal Bandi: A kind of tunic or jacket, worn shorts and fastened under the armpits.

Bagir's music style: Global tailored suit brand Bagir is a revolutionary company that produces machine washable suits, waterproof suits with nano-technology, super-light suits, and more. They were the first to introduce the concept of music player functionality with ElekTex technology (Comprehensive Merchandising Support 2007). It is the first time that smart clothing technology has been applied to a suit. The development of music player clothes will expand to suits or fashion clothing from pre-existing sports or casual clothes.

Bahama: (1) A cotton from the West Indies; (2) A commercial variety of Texas cotton, the staple measuring 23–26 mm, growing in large balls, yielding one-third of lint.

Bahia: A variety of cotton having a fairly strong but harsh and wiry staple, grown in Brazil.

Bahmia: Raw cotton having a fine staple; formerly grown in Egypt, but now little cultivated.

Bail or lug (in zippers): A portion or portions of the slider to which the pull or pulls are attached.

Bailey: Variety of upland cotton, grown in the United States; the staple is considered of very good quality, measuring from 28 to 32 mm, the lint being less than 30 percent.

Baindix: Name of a Turkish cotton.

Bainin: Hand-woven woollen home-spun fabric from Ireland. It is used for coats, skirts, stoles, etc.

Baique: A coarse baize, made in Belgium.

Bairaiti: Variety of fine raw cotton from Indian sub-continent; used for Dacca muslins.

Baird: A highland tartan that is composed of blue and black stripes, narrower green stripes and bright-red lines.

Baize: (1) Originally made in Spain and used as a wall covering, this is a loosely woven, short napped fabric, made to imitate felt. It is usually dark green, plain weave and is rarely found on counter sales.

(2) A coarse woollen cloth of plain-weave construction made in United Kingdom for centuries. It is now a thick cloth with a napped surface and is rarely available on counter sales.

Baking soda: Sodium bicarbonate.

Bakhtiari carpets: Strong rustic knotted carpets from Chahar Mahal region to the south of Isfahan. They are easily identifiable by their design involving squares and diamonds made to stand out by a plane outline in the ground. These geometrical designs are decorated with animal or plant motifs and will contain ten or more designs. They are made in dark colours like deep-red, yellow-ochre, bottle-green, dark-brown or bright-blue with red or natural grounds. The finest variety is also called Bibibaff.

Bakhshis rugs: Persian rug of cotton warp and weft, the loose coarse wool pile being tied in Ghiordes knot.

Bakrabadi: Very soft and pale-coloured Indian jute.

Baku carpets: Caucasian short-pile, thin, hand-knotted carpets from the region around Baku. They have a marked geometric decoration. Generally,

the field decoration is of three or four motifs in the shape of diamonds or rectangles and diamonds one above the other which alternate with hooked Greek-key motifs filled in light-red or ochre-yellow on a light-blue ground. The unusually pale colours are a characteristic of Caucasian carpets. These are also used as prayer mats. Baku carpets contain approximately 100,000 Turkish knots per metre square.

Balance (in garments): The relation of one section of garment to another in harmony with the natural attitude of the figure, especially that of back and front lengths.

Balance marks: Notches or threads in garment parts, which helps the tailor to preserve the balance of the garments by serving as guides during assembly. They are generally put at side seams, in the scye, shoulder seams, hind arm and fore arm seams and elsewhere as necessary.

Balance twist: See **Twist, balanced**.

Balance wheel: Wheel located at the end of the machine arm.

Balanced cloth: A term used to describe a woven cloth with yarns of the same linear density and same number of threads per cm in both warp and weft.

Balanced colour ways: When the colours change, but tonal relationship within the design stays the same while giving the same overall visual effect.

Balanced crepe': A fine crepe using the same yarn arrangement in warp and weft is called a balanced crepe'. A common example is to alternate 2 S twist with 2 Z twist, or 4 S twist with 4 Z twist in warp and weft. See **Crepe'**.

Balanced twists: In a plied yarn or cord, an arrangement of twist which will not cause the yarn or cord to twist on itself of kink when held in an open loop.

Balancing pond: A pond or lake, which may be artificial, that is used to attenuate the flows during storms and thereby reduce storm flows downstream of the pond and alleviate flooding. The retention time in the pond is relatively short, possibly 24 hours or less. The pond contains some water during low-flow conditions. The term 'balancing pond' may be synonymous with a detention pond, but a balancing pond may mean a combination of systems to balance stormflows, such as a detention pond followed by constructed wet-lands.

Balancing reservoir: A reservoir into which there may be a variable delivery and from which the flow is steady. It provides steady working conditions for the filters and other plant downstream of it.

Balancing tank, equalisation (equalization) basin, equalisation tank: A tank or basin designed to reduce and even-out the variations in the flow or chemical characteristics prior to the waste-water treatment plant. The tank may store the waste-water or storm-water at high flows and release at

low flows. Alternatively, the tanks may be used in industry to balance-out the variations in the nature of the waste-water that emanates from differing activities. This may occur prior to onsite treatment or discharge to a sewer. Many water and waste-water treatment processes operate most efficiently at a relatively constant flow. Flow balancing can be particularly important in treating waste-waters from small communities which can generate erratic flows. See **Package waste-water treatment plants**.

Balagny cloak: A cloak or cape with wide collar, used in France, in the first half of the 17th century, named after a military hero.

Balanced stripes: A design of stripes that are even in width and spacing.

Balao: A type of raw cotton from Brazil.

Balasse stout: Old plain-woven cotton fabric from Surat.

Balassoi: Old Indian fabric, made of bast fibres of a tree.

Balastei: A gold tissue, made in Vienna and used for trimmings.

Balbriggan: A light knit fabric made on a circular knitting machine. It was originally made at Balbriggan in Ireland and used for hosiery. Now it is used for under wear, sportswear and pyjamas. Usually made from cotton, it may have a slight fleece on wrong side.

Baldacs: Rich gold-brocaded silks imported in the Middle Ages from Bagdad and Damascus, also made in Italy.

Baldachin, Baudekin, Baldaquin, or Bodkin: Rich medieval silk fabric, originally from Bagdad, made with silk warp and gold filling, often studded with precious stones; used for church vestments, state occasions, etc. Later they were made only of silk and dyed crimson.

Baldrick (French bandelier): Sword Hanger, usually decorated with exquisite embroidery (often metal thread embroidery), and worn from the right shoulder to the left hip, usually over the waistcoat or earlier bolero-style doublet, but under the coat or justacorps. Frequently worn over the coat to show off the embroidery, when the baldric had become very broad and long. The sword (rapier, later also dress-sword) hangs very low at the knees.

Bale: (1) A bag, sack, square or oblong box or package into which silk, staple fibres or tow are compressed. The common shipping and storage package for these fibres.

(2) A defined quantity of raw silk carefully wrapped in a cotton cloth and gunny cloth. A Japanese or Shanghai bale contains 60kg (Picul), a European bale contains 100kg and a Canton bale contains 48kg of raw silk. Indian bale occasionally contains 20kg raw silk.

Bale breaker: A machine used for opening cotton direct from the bale.

Bale dyeing: The process in which the bales of wool, cotton or synthetic fibre are dyed as such. The bales are placed directly in a cage designed to hold up to 4 bales and placed into a conventional kier and dyed. After dyeing, the bales are either hydro-extracted or vacuum extracted to remove the extra moisture and dyed.

Bale weights for cotton: Bale weights of cotton in different countries are as follows:

Australia = 227 kilos

Colombia = 233 kilos

Mexico = 220 kilos

Nigeria = 185 kilos

Uganda = 182 kilos

India/Pakistan = 170 kilos

South Africa = 200 kilos

Egypt = 720 lbs = 327 kilos

Sudan = 420 lbs = 191 kilos

Tanzania = 400 lbs = 181 kilos

USA = 480 lbs = 218 kilos

Balicnong: A fibre used for making cords in Philippines.

Baline: Plain woven, coarse fabric made of jute, hemp or cotton; used for bagging, stiffening for garments, or for upholstery.

Baliziei: Coarse, medium, strong leaf fibre, yielded by the Heliconia.

Balkal yarn: Yarn spun out of tussar cocoon peduncles, after they are boiled in alkaline solutions and opened up.

Ball (yarn): Yarn package.

Ball: Knitting cottons, silks, or wools are often made up in a ball or egg shape.

Ball mill: A standard equipment for reducing the particle size of water-insoluble pigments and dye-stuffs to fine particle size. It consists of a cylinder rotating on an axis partly filled with steel balls, porcelain ball or common pebbles. The controlling factors are the size of the balls, relative volume occupied by the balls, and the substance being milled, type and quality, and rate and time of rotation.

Ball warp: (1) Parallel threads in the form of a twist-less rope wound into a large ball. When wound mechanically with quick traverse, a ball warp may be made in the form of a large cylindrical package.

(2) Warps that, after being wound on a warping mill are bunched together in rope form and wound into a ball or similar form (silk).

Ball warping: Ball warping is mainly used in manufacturing of denim fabrics. The warp yarns are wound on a ball beam in the form of a tow for indigo dyeing. After the dyeing process, the tow is separated and wound on a beam. This stage is also called long-chain beaming or re-beaming.

Ballanca: Cloth made in Austria of black wool mixed with goat's hair.

Ballast: Material that is used to bring the total weight or volume of textiles to an amount specified in the procedure for processing or testing of textiles.

Balleta: A red colour woollen fabric once made formerly in Turkey.

Balling up: A defect in which loose or frayed fibres that have formed into a ball and are then woven into the fabric.

Balling up: See **Fuzz ball**.

Ballistic: A thick woven fabric that is extremely abrasion resistant and tough; has a denier of about 2000, and is used in apparel, packs and gears.

Balloon cloth: (1) A very closely plain woven cotton fabric, once used for ready-made shirts, type-writer ribbon and balloons.

(2) A balloon fabric is any fabric which forms a functional part of the lift creating envelope of floating aircraft. It is usually a simple single cloth, of lightly woven construction, and may include rib stop threads to enhance the tear resistance. It was made historically of cotton or linen doped to reduce air permeability. Modern balloon fabrics are typically polyamide or polyester based and are coated with polymers, and or laminated with a thin polymer film or films, to reduce permeability to the specific lifting gas employed and to confer protection against UV light.

Balloon: The curved path of the running yarns about the take-up package during spinning, down twisting, plying or winding, or while they are being withdrawn over-end from package under appropriate yarn winding conditions.

Balloon control rings: One more ring positioned between the ballooning eye and ring on a ring spinning machine or ring twisting machine, in order to contain the ballooning yarn. The purpose is principally to permit spinning on to the longer package at high spinning speeds without excessively high spinning tension and resultant end breaks.

Balloon fabric: A plain weave cloth having the same breaking strength in each direction. This fabric is made from fine (60s to 100s) combed yarn woven to the constructions 92 × 108 to 116 to 128. Once used for readymade shirts, for typewriter ribbons and of course, vulcanized balloon fabric is used for air cells in planes and barrage balloons.

Balloon net: Machine-made net; used for lace foundation, similar to the net used on balloons.

Ballooning: The entrapment of air either deliberately or accidentally in a fabric while processing. In knitted fabric, ballooning is done before squeezing to remove all wrinkles.

Ballymena: A sort of Irish linen.

Ballushar: An Indian silk fabric.

Balmoral: Heavy and very strong woollen fabric made in red, blue, and black stripes.

Balsa: Silky, yellowish seed hair of the Bombax tree in Central America.

Baluchari: A hand-made silk fabric for sarees or scarves made in Baluchar, near Murshidabad, India, where it was patronized by art loving *nawabs*. It was a silk weave and its solid base colours such as green, red, purple, magenta, brown and blue provided a sharp contrast to the distinctly elaborate silver/gold zari (embroidery weave) *Mughal* borders and Pallu. This technique had died out in the original place due to lack of patronage and was adopted by neighbouring Bishnapur where it prospered. The Hindu kings encouraged the weaving of *puranic* (epics) tales from the two epics *Ramayana* and *Mahabharata* which remains hallmark of today's classic *baluchari*. Woven on jacquard looms, the fabric has very fine filament as untwisted yarns are used, which exhibits opulence but is not stiff to drape. Another feature of baluchari is the white outlining of the motifs.

BAM: Bundesanstalt für Materialprüfung (German Federal Institute for Materials Testing).

Bamia: (1)Variety of Egyptian cotton, having a light-brown staple of inferior strength; (2) A strong, lustrous, white stem fibre of good quality, yielded by the wild okra in Sudan; used for making ropes by the natives.

Banana: The yellow colour of the banana skin; also 'banana-yellow'.

Banana fibre: See **Manila fibre**. Sometimes banana fibre is obtained in India from one-year-old plants by steaming the unrolled stalk and scraping off the outer skin. The fibres are pounded (wrapped up in a cloth) and cleaned. They are very durable and said to be excellent for fabrics intended for tropical wear.

Bananeiras: Strong and fairly flexible fibre, yielded by the young leaf stalks of a palm tree in Brazil; used for cordage.

Banbury plush: Woollen plush fabric, made with cotton warp and wool pile and is used for upholstery in England.

Bancal or Banker: Tapestry of green or blue colour, produced during medieval period in Britain.

Bancroft: Commercial variety of cotton from United States; the fibre measures up to 20–25 mm, grows in medium large bolls, yield 30–32% lint; it has a late maturity. Also called **Herlong**.

Band [in garments (continuous/grown-on)]: Pant panels that extend to the top of the pant and are folded over without an outside band. A separate inside band lining is sewn through the pant and has an inter-lining.

Band (pasted-on/folder-set) (in garments): A separate band sewn on the pant with stitching that shows on the outside at the top and bottom.

Band (rocap) (in garments): A separate band of body fabric sewn on and turned down so that the attaching seam is not visible. Inside, the band is a separate lining, made from picketing fabric and interlining.

Band work: (Similar to filling, jours, modes); used in needle laces to fill the centres with fancy open stitches.

Band (shade): After final inspection of the fabric, the shade of each piece is grouped together into bands which are having the same depth, hue, and tone. Shade bands are made, and each roll is identified for the particular shade band while laying for cutting and cut together to avoid shade variation in that group.

Bandage: A narrow strip of cotton or linen fabric, plain and loosely woven; used by surgeons for the purpose of bandaging.

Bandala: Native name for the harder and stronger outer fibre of the Musa textiles, in the Philippine Islands; used for cordage.

Bandana: (1) Special printing effect, producing light coloured designs over a dark foundation by destroying the dyes through bleaching agents.

(2) Cotton fabrics having white- or bright-coloured spots on a red or dark back ground; used as handkerchiefs.

(3) Cloth made of the lustrous fibres of various East Indian plants, having pale yellow patterns over a dark foundation.

Banderoles: Bolting cloth.

Bandhor rugs: Made in Asia of wool and cotton; the very thick pile is tied in Ghiordes knot.

Bandhani: The traditional tie and dye craft in northern India. Making a piece of bandhani from start to finish is intense and time consuming and in most villages; it functions as a sort of community enterprise where it is not unusual for a piece to be woven at one home, tied in another, and dyed in a third and finally embroidered in the last. The *abha* wedding costumes, a speciality of Kutch, for example, involve the women of the house – whose finger nails are maintained unusually long to speed up her work – bunching minute sections of the material, according to the pre-ordained design, and tying each bunch with waxed cotton thread. The colours are generally black and scarlet with touches of yellow; while the hems are finished with lavish gold brocade. The common colour red stands for marriage and fertility, yellow as a celebration of spring, saffron a colour preferred by yogis, and black and maroon both of which are symbols of mourning. Until recently, the dyes used were natural: madder and cochineal for red, indigo for blue, jasmine and saffron for yellow. The red is supposed to be as brilliant as possible and because of differing water qualities some towns are better suited to get a brighter shade compared to others. The different knots produce a different effect and the more miniscule the raised bandhani, the finer the artistic value of the piece. Each traditional pattern has its own name, such as the *chandokhni* and the *shikara* which are specially designed for weddings. Chokidal is a design of squares usually with elephants, while the *kambaliya* has a dotted pattern in the centre with a different design along the border. The *basant bahar* represents the flowers of spring; the *mor zad*, a peacock pattern; while *ambadal* depicts a network of branches and leaves inter-woven with a variety of birds.

Banding (heavy tow): Non-uniform distribution of filaments across the tow-band width.

Bandle: A coarse home-spun linen made on narrow hand looms in Ireland.

Bandura-wel: Very pliable cord made of the stem of the pitcher plant in Sri Lanka.

Bandy: Striped cotton fabric made in West Africa, made of waste cotton.

Bang off: See **Filling bar, coarse; filling bar, fine**.

Bangaline (Bengaline): Lightweight dress goods, woven with silk warp and heavier cotton or woollen filling, forming coloured cross ribs heavier than in poplin. Sometimes two picks are in the same shed. Often also printed. The cheaper grades are all cotton.

Bangalore: Hand woven woollen rug, made in India with a knotted pile.

Banig: Mats made of the leaves of the buri-palm, the pandang or a sedge, called tikug by the natives of the Philippines.

Bank: Another name for a yarn creel.

Bankukri: Raw cotton grown in Rajasthan, India; the staple is long and silky.

Ban-lon: Fabric made of yarns specially treated by textralised process of M/s Bancroft and sons, which adds bulk, moderate stretch, and texture to synthetic thermoplastic yarns. Fabric made from these yarns is soft, strong, easy to wash, quick drying and crease and shrink resistant.

Banner cloth: A plain weave fabric of cotton, wool or silk used for the fabrication of flags, banners and buntings. Sometimes bunting is known under this name.

Bannister harness: See **Split harness**.

Bannockburn: The main characteristic of this material is that a single colour yarn is alternated with a yarn made of two colours; the yarns are twisted together before weaving. A firmly woven cheviot tweed in 2/2 twill weave (straight twill or herringbone) having single and two-ply yarns, alternately in both warp and weft. Originally, the two-ply yarns were made by plying single yarn identical to the one used in the fabric with a white yarn for use in the warp and with a dark yarn for the use in the weft, but modern bannockburn tweeds favour the count of the coloured single yarns approximately to the resultant count of the ply yarn which are white colour and/or light-dark woollen grandelle or marl yarn, warp and weft. The name has come from a Scottish town that has been the centre of an area producing a top quality tweed for suits and coats. In some cases, it is a soft, slightly napped, twilled woollen fabric, made of cheviot wool, having double-and-twist warp and single filling.

Banos: Native name for fibre used for ropes and cords in the Philippines.

Bantine: Raw silk from Genoa.

Banuacalao: Native name for fibre used for ropes and cords in the Philippines.

Banyai system: A carpet machine knotting technique from Hungary.

Baobab: A large tree in Africa and India, yielding very strong bast fibres; once used for cord and bagging in Africa and for saddles in India.

BAP: Bromoform alkylphosphate. The BAP method involves application of an aqueous emulsion of a polymer produced from tribromomethane, $CHBr_3$ and triallyl phosphate, $(CH_2{=}CH\text{-}CH_2O)_3PO_4$ which forms a crosslinked polymers on cotton with a flame retardant action. See also **BA cotton**.

Bar: (1) A CGS unit of pressure equal to 10^5 (Pa). A metric unit of atmospheric pressure, equal to one million dynes per square centimetre, 100 kilopascals, 750.062 tor, 1.019 72 kilograms of force per square centimetre (kgf/cm2), or about 14.503 78 pounds per square inch (lbf/in2). The word comes from

the Greek *baros*, "weighty." We see the same root in our word, barometer, for an instrument measuring atmospheric pressure. One bar is just a bit less than the average pressure of the Earth's atmosphere, which is 1.013 25 bar. In practice, meteorologists generally record atmospheric pressure in millibars (mb). In English-speaking countries, barometric pressure is also expressed as the height, in inches, of a column of mercury supported by the pressure of the atmosphere. In this unit, one bar equals 29.53 inches of mercury (in Hg). It may be used with SI units, and SI prefixes may be attached to it. Since it describes decimal multiples of the pascal, it is convenient in practical use. The millibar (symbol: mbar or mb) is a commonly used unit of pressure in meteorology.

(2) The edging of the button-hole with button-hole stitches to prevent its being torn.

(3) In needle laces, the threads connecting the various solid parts of the lace made of two or more strands and being either corded or covered with button-hole stitches. Also called bride, coxcomb, pearl, and tie. Bars are also parts of pillow and macrame laces.

(4) (in woven fabric) A band (q.v.) that runs with clearly defined edges and that differs in appearance from the adjacent normal fabric (It may be shady and may or may not run parallel with the picks). Bar is a general term that covers *pick bar*, *weaving bar*, *shade bar* and *tension bar*, etc.

Bar marking in screen printing: A problem encountered in printing on flat-bed screen printing machines, whereby the sides of the screen frames at right angles to the direction of printing exert pressure on the preceding print and thereby crushing or soiling the printed colours (screen fall-on effect). The problem can be minimized by using screen frames with a triangular profile (i.e. to reduce the area of contact with the printed fabric) and/or by covering the undersides of the screen frames with coarse grains (e.g. wood chippings of approx. 1 mm size) to break up and minimise contact with the fabric during printing.

Bar tack: See **Bar tacking**.

Bar tacking: Reinforcement by means of stitching at points of stress, e.g. button holes, pocket corners, seam ends, belt loops, etc.

Bar (pick): See **Starting place set mark, stop mark**. A prominent band in a woven fabric that has one clearly defined edge and that gradually merges into normal fabric and is caused by an abrupt change in pick spacing followed by gradual reversal to normal pick spacing. Such a bar occurs on restarting the loom without sufficient care after (1) Pick finding, (2) Uneven weaving or pulling-back, or (3) Prolonged loom stoppage. These bars may also be

referred to as "standing places" or "pulling-back places" if the precise cause is unknown. In knitting, the band has several courses containing stitch lengths longer than in adjacent normal courses and has resulted from a machine stop that has caused changes in warp tension.

Bar (shade): A band that has developed a different colour from the adjacent fabric during (or subsequent to) dyeing and finishing, owing to damage to (or contamination of) otherwise normal fabric or weft yarn prior to weaving.

Bar (tension): A band composed of weft yarn that has been stretched more (or less) than the normal weft prior to or during weaving. This abnormal stretch may have been imposed during winding by faulty manipulation or by some mechanical fault in the loom; during weaving by incorrect tensioning in the shuttle; or may have arisen owing to faulty yarn having been excessively moistened at some stage and stretched more than the normal yarn under normal applied tensions. It may appear as a cockled bar in those cases where stretch has been sufficient. See also **Cockle (fabric)**.

Bar (weaving): A band that usually shades away to normal fabric at both its edges. It owes its appearance to a change in pick spacing, and may repeat at regular intervals throughout an appreciable length or even the whole length of the piece and is the result of some mechanical fault in the loom, e.g. faulty gearing in the take-up motion, bent beam gudgeons, uneven or eccentric beam ruffles, uneven bearing surfaces at some point in the let-off motion, etc. Bars of this type associated with the take-up or let-off motions are also referred to as "motion marks"

Bar (weft): A band that is solid in appearance, runs parallel with the picks and contains weft that is different in material, count, filament, twist, lustre, colour or shade from the adjacent normal weft.

Baracan, Bouracan, Berkan, or Perkan: Closely woven heavy cloth used for furniture cover or drapery, made of doubled and hard-twist worsted yarn warp and three or six-ply, hard-twist worsted filling and finished with moiré effect. It has warp ribs.

Baracan grosgrain: French term for *baracan*, with a heavier weft than warp.

Baracanee: French term for warp ribbed, plain coloured fabrics.

Baracani: Fabric made of mohair in Italy during the Middle Ages.

Baras: Coarse bagging made in Bohemia.

Barathea: (1) A silk, rayon or man-made fibre necktie fabric with a broken-rib weave or twill hopsack and a characteristic pebbly appearance. It is a rich, soft-looking fine fabric.

(2) A fine dress fabric with a silk warp and worsted filling, woven in broken filling rib which completely covers the warp.

(3) A smooth-faced worsted uniform cloth with an indistinct twilled basket weave of fine two-ply yarns

(4) Expensive fine English cloth, closely woven with a slight diagonal weave appearance and broken rib effect. Feels smooth, but has a granular appearance. Originally in worsted and silk, but now made with synthetic fibres such as viscose, acetate and polyester. Used for men's evening cloths in black and in many colours for coats and skirts for women.

Barawazi: Cotton cloth woven with dark blue, yellow and red checks, the border is in checks of red, black and yellow; used in East Africa.

Bare elastane: Elastane yarn in the so called bare state, in contrast to the wrapped form. See **Core spun lycra**.

Bare pychon ka pyjama (Hindi language): A pyjama with wide and flared legs.

Barium chloride: $BaCl_2 \cdot 2H_2O$, MW 244,34. Colourless crystals with a bitter salty revolting taste, stable to air, water-soluble (446 g/l at 20°C; 769 g/l at 100°C). Uses: As a de-lustring agent for viscose (two-bath method); weighting and filling agent in finishing (seldom used); reagent for the detection of sulphuric acid and sulphates (white insoluble precipitate); softening of boiler feed water (calcium sulphate hardness).

Barium hydroxide: [Baryta; $Ba(OH)_2$] A white solid, usually obtained as the octahydrate [$Ba(OH)_2.8H_2O$]. It can be made by adding water to barium oxide. Barium hydroxide is the most soluble of the group 2 hydroxides. It is used in volumetric analysis for the estimation of weak acids using phenolphthalein as an indicator. Used in the testing of degree of mercerization.

Bark: Dark brown.

Bark crêpe: Mostly atlas construction clothing crepe with a woven matt face and rough structure, in a bark-like pattern produced by embossed printing or by construction made of viscose, acetate, cotton, etc. A stiff fabric for evening wear.

Barking: Removal of bark from wood before pulping.

Bar marking in screen printing: A problem encountered in flat-bed screen printing whereby the sides of the screen frame exert pressure on the preceding print, thereby crushing or soiling the printed colours. The problem can be minimized by using screen frames of triangular profile to reduce the area of

contact with the printed fabric and/or covering the underside of the screen frames with coarse grains to break-up and minimize contact with fabric while printing.

Barman lace: The name given to machine-made reproduction of French and Belgian hand-made laces.

Bar: A bar, running across the full width of a piece, which differs in appearance from the adjacent normal cloth. It may be shady or solid in appearance, is clearly defined and runs parallel with the picks. There are different types of bars like *weft bar*, *shade bar*, *pick bar*, *tension bar*, etc.

Barrackan: In Mediterranean countries, a camel's-hair cloth for men's wear; in England a sort of moleskin. Also spelled barragon.

Barras: A coarse linear fabric similar to sack cloth; originally produced in Holland.

Barb (in feathers): The primary structure of plumage emanating from the quill of a feather.

Barbadoes: West Indian raw cotton.

Barcelona: Raw cotton from Colombia.

Barcelona handkerchiefs: They are of fine twilled silk in plain colours, checks and fancy patterns.

Barcelona lace: Stitch in old needle-point, producing checkerboard effects with button-hole stitches.

Barchent: A stout, twilled cotton fabric, usually napped on the back, bleached, dyed or printed. Used in Germany, Turkey and Austria for heavy underwear, lining and also cheap dresses.

Barclay: A Highland tartan composed of alternate blue and green stripes and crossed by red lines.

Bareface: Fabrics without any nap.

Barege: (1) Earlier days a light, French homespun, dyed in the yarn or printed, made of fine, hard twist worsted warp and filling, producing a crepe-like effect. Later made with silk or cotton warp. It is a sheer fabric; used for dresses, etc.

(2) Nowadays, a light-weight dress goods woven like gauze, with fine silk warp and worsted filling; also called woollen gauze and woollen grenadine.

(3) Shawl made in France of organzine warp and worsted filling.

Barege yarn: Fine, hand-spun yarn; used for very fine gauze or veils.

Barfoul: A cotton fabric in the West African trade; used for garments.

Barhana: Lowest grade of Smyrna rug.

Barinas: Native name for fibre used for ropes and cords in the Philippines.

Barleycorn: Name for a small, reversed weave or for a weave similar to the matt weave.

Barmen lace: Braid made of odd number of yarns.

Barndenburg coat: A loose overcoat with turned back cuffs used in the fourth quarter of the 17th Century. The sleeves are made one with the rest of the garment.

Barnes: A commercial variety of late maturing American cotton of medium long staple.

Barnett: A commercial variety of cotton from Alabama; the medium late maturing staple measures 23–25 mm, forming medium size balls, yielding 30–32% lint.

Barnsley crash: Narrow crash used for towels.

Barnsley linen: Fine grey or bleached linen cloth; used for embroidery.

Barn-tine: Levant silk; used for trame and braids.

Barometer (barograph): An instrument for measuring atmospheric pressure, usually in the region of 101 330 Pa (1,0133 bar = normal atmospheric pressure).

Baroy: Native name for fibre used for ropes and cords in the Philippines.

Barpours: Dress goods used for making garments worn for mourning. It is a fine fabric made using organzine warp and very fine wool filling in serge or brocaded weave. Used for men's suiting.

Barr: Textile diffusion resistance to water vapour relative to atmospheric air (1 cm thick calm air layer at 20°C = 1.00 barr).

Examples:

Air (atm: 0°C) 1.05

Air (atm: 20°C) 1.00

Air (atm: 40°C) 0.95

Non-woven fabric (20 g/m^2) 2.20

Non-woven fabric (40 g/m^2) 4.20

Light-weight suiting fabric 8.50

Standard suiting fabric 16.40

Sweaters 20.50

Blanket material 22.50

Overcoat material 40.00

Wind-cheaters approximately 100.00

The barr value is expressed here in multiples of the barrier capacity of a 1 cm thick layer of calm air.

Barracan: Coarse, thick, strong cloth, somewhat resembling camlet; used as coating and cloaking; now made with silk and wool warp and Angora or other goat hair weft, forming warp ribs. See **Baracan**.

Barrage: Figured table linen, made in France in three qualities.

Barragon or moleskin: Sort of strong cotton fustian of coarse quality, twilled and shorn; used for men's working clothes.

Barragones: In South America, a closely woven twilled cotton trousering with narrow stripes; made in black or bleached.

Barrangan: Woollen cloth used in the Middle Ages.

Barras: Coarse, plain woven linen; used for bags.

Barratee: Silk cloth, being a variety of the Barathea.

Barre': (1) A term used for a defect seen as unintentional, repetitive visual pattern of continuous bars and width-wise stripes (so called bars) in textile fabrics, produced by weaving, due to the effect of yarns or colours or dyed appearance of the fabrics. Descriptive terms and code letters for the barre patterns. (1) **Simple**: Consisting of not more than two contrasting yarns – light, dark; lean, bulky; intermittent, uniform, etc.—spaced at regular intervals; (2) **Banded**: A simple pattern in which the contrasting yarns alternate in equal width intervals; (3) **Complex**: Consisting of two or more interspersed simple patterns.

(2) Barre effect is often occur in warp-knit fabric produced from textured polyester filament yarn dyed with disperse dyes. This is due to the structural difference of the polyester yarn due to texturizing.

(3) (in weft knitted fabrics) A clearly defined band (q.v.) or bands that run(s) full width across an open-width fabric or spirally in a tubular fabric, and differ(s) in appearance from the adjacent normal fabric as the result of variation of yarn characteristics. When the yarn is of a different colour (owing to differential dyeing) from that of the rest of the fabric, that defect is termed "barriness").

Barre': Descriptive of a fabric containing bars. See also **Bar**.

Barred witch stitch: Same as **Plaited stitch**.

Bare'ge: See **Barre'ge**.

Barre'ge: Very sheer fabric of wool and silk or cotton, used for veiling. Originates from barrage in the Pyranees. Unsuitable for clothing. Drapes well, but will not withstand strain in wear.

Barrel shaped yarn package: A precision wound barrel-shaped package for short length of yarn.

Barrier effect of wool fibre epicule: Prevention of dye from penetrating the fibre interior from dye liquor at room temperature due to the Epicuticle layer. Dye can only penetrate through the epicuticle from heated dye liquor. Chlorination treatment removes the epicuticle which is why deeper dyeing are obtained on chlorinated wool.

Barrigudo: Short, silky fibre, yielded by the pod of the Bombax ventricosa, in Brazil; used for stuffing.

Barriness: Longitudinally or transversely striped dyeing of woven or knitted polyamide, polyester or viscose fabric, due to mixed up yarn or density and tension variation in weaving or warp and weft knitting. Differences in yarn count, yarn twist, lustre or deformational differences also can cause this fault. Other reasons include chemical difference in polyamide and viscose, fibre change due to action of light and chemicals differences in drawing, crystalline structure and orientation due to varying inner-fibre fine structure during production, and these become more prominent in dyeing. The same defect can occur in woven fabric also, due to the same reasons.

Barroches: Fine, unbleached Indian cotton cloth; sort of bafta.

Barry: A flaw in the fabric, showing bars in the direction of the warp or the weft.

Barutine: An inferior silk fabric, made in Persia.

Basal layer: In fibre structure, the basal layer is a well-ordered active cell layer zone; e.g. in wool structure it is the intermediate membrane which acts as the basal layer of the internal-scale cell layer.

Bas de cotte/de jupe/de robe: This term was used in the second half of 17th Century for the lower part of the petticoat or skirt, which would be covered by the gown body.

Bas de jump: See Bas de cotte.

Bas de robe: See Bas de cotte .

Basalt fibre: A mineral fibre produced from molten basalt at about 1100–1400°C. Cheap, very fine, highly ductile, long fibres which are thermally

stable upto 1100°C. Woven cloth used as insulating material against heat, cold and sound.

Basane: A shaggy-face French twilled woollen fabric.

Basant bahar: A bandhani design. See **Bandhani**.

Base: Chemical compound that dissociates in aqueous solution into negatively charged Hydroxyl ions and positively charged weak acid or metal anions and will produce pH more than 7 in solution. Alkali is often used synonymously, though this is not strictly true (all alkalis are bases, not all bases are alkalis).

Base cloth (needling): A textile fabric that is normally woven, which may be included within a needle felt to provide dimensional stability and strength, and in some cases to facilitate the punching operation.

Base colour: A colour which is predominant in a **colour scheme**.

Base dyeing: It is a dyeing process in which after naphtholation, the fabric is passed through the base solution when the diazotization and coupling is happened with the padded naphthols and the azoic dye is formed on the fabric.

Base exchange: See **Cation exchange**.

Base fabric: The base fabric or substrate on which the coating is done, in coated fabrics.

Base layer: The apparel in contact with your skin. The purpose of the base layer is to keep you warm/cool and dry.

Base material (carpet): Carpet primary backing.

Base printing: See **Naphthols** in direct printing. In direct printing of naphthols, the naphthols are printed first and the base is printed afterwards when the diazotization and coupling is happened at the places where the naphthols are printed where the azoic dye is formed on the fabric.

Base units: Seven base units defined in the SI system for the basic measures – metre, kilogram, second, ampere, Kelvin, mole and candela for basic measures of length, mass, time, electric current, thermodynamic temperature, amount of substance and luminous intensity. Their abbreviated forms are m, kg, s, A, K, mole and cd.

Base (strong): A strong base completely ionizes in water solution. Sodium hydroxide is the most common strong base used in textile processing. See ***Base, weak***.

Base (weak): A weak base does not fully ionize in solution. Some of the weak base remains in solution in molecular form. If BOH represent the base, some would remain in solution as BOH and some would ionize to B+ and OH-.

This makes for something of a "reservoir" action –if some of the OH-ions are used up in the reaction, more BOH would ionize. Because of this, the pH of a solution of a weak base will change by less than one for a change in concentration of the base of by a factor of 10 (for a strong base increasing the concentration by factor of 10 will increase the pH by 1). pH, unless very accurately measured, is a poor indication of how much of a weak base is in solution. Sodium carbonate and sodium bicarbonate are weak bases frequently used in textile processing. Both of the do not contain OH, but they rather hydrolyse to yield NaOH.

Bases: Chemical compounds which dissociate in aqueous solution into negatively-charged hydroxyl ions and positively-charged weak acid or metal anions. They form salts with acids = neutralization. Bases have an alkaline reaction (pH > 7) and turn red litmus paper blue. The number of ionizable OH groups determines whether a base is mono, di or polyvalent, etc. Inorganic bases are OH compounds of metals (e.g. sodium hydroxide solution NaOH = Na^{+}+ OH^{-}, strong base over 50% dissociated; ammonium hydroxide NH_4OH, weak base) which, on losing water, change into the corresponding oxides. Organic bases include e.g. amines (aniline $C_6H_5NH_2$), dye bases and numerous other water-soluble nitrogen (e.g. pyridine C_5H_5N), phosphonium and sulphonium bases.

BASF: Badiche Anilin and Sodafabrik.

BASF Combitest: Standard methods for determining the diffusion properties of disperse dye under practice-relevant conditions.

Bashofu: Probably an old fabric produced in Japan using Banana fibres. It used to be very light and white fabric, used for summer undershirts.

Basic: A term describing the substances having an alkaline nature. Bases may or may not be water soluble.

Basic colours: According to Berlin and Kay's 1969 work *Basic Colour Terms*, there are, from a linguistic standpoint, only 11 basic colours – black, blue, brown, green, grey, orange, purple, pink, red, white and yellow. Their research involving 98 languages indicated that no language has more than these 11 basic colours and that colour names evolve in languages in a particular order. In priority, comes black and white followed by red. Then comes yellow and green (in either order) and then blue and brown. The colour words of all those languages studied which had, for example, only five words for colours would always be black, white, red, yellow and green. See **Essential colours**.

Basic English colours: Basic English, devised by Charles Kay Ogden between 1926 and 1930 as an international form of English, uses only 850

words of which eight are colours, namely, black, blue, brown, green, grey, red, white and yellow.

Basic salts: Salts.

Basic dye: See **Cationic dyes**.

Basic dye: A dye that dissociates in an aqueous medium to give a positively charged coloured ion (cation) with affinity for fibres containing acidic groups.

Basic dyeable polyamide: See **Differential dyeing polyamide fibres**.

Basicity: A property of bases and basic salts whereby hydroxyl ions of a basic character are formed by dissociation in aqueous solution.

Basicity value: The basicity value plays an important role in the weighting of silk, e.g. with basic iron (III) sulphate. The basicity value is obtained by dividing the sulphuric acid content (calculated as H_2SO_4) by the iron content (calculated as metallic iron) = (H_2SO_4:Fe).

Basic fabric: Practical, down-to-earth, natural looking fabric that can be made into apparel uniquely suited to meet the needs of the 1970s lifestyles. Basic fabrics are made in plain, twill or satin weaves. The majority of which are plain and twill. Warp- and weft-knitting are the basic knits. Both natural and manmade fibres and blends are used. Important basic fabrics include broad cloth, denim, corduroy, gabardine, batiste, duck, seersucker, velvet, velveteen, oxfords, warp knits, double knits, gingham, chambray, chino, etc.

Basic weave: Basic weave of a fabric is the way the yarns are inter-locked. The weave gives the fabric its characteristics and strength. The three basic weaves are plain, twill and satin.

Basics: A term used to describe classic jeans fabric as well as standard jeans qualities which appear regularly each season, in contrast to newly developed styles (“designer jeans”). They include, e.g. flats, chambray, blue denim, canvas, toile, cord velvet, scrubbed denim, brushed denim, suedette and duvetine.

Basin: (1) A white twilled cotton cloth, similar to dimity, made with or without narrow stripes, sometimes napped on one side; used for vests; (2) A French fabric, originated in the 16th century, made of pure or cotton mixed linen, or hemp warp and cotton filling in a twill weave.

Basin refuse: It is the last parchment of cocoon which is unreelable. Normally this waste contains pupal body. It is very inferior in quality. This waste is not used in spun silk mills; however, this waste can be used for hand spinning.

Basin waste: See **Basin refuse**.

Basin royal: White stripped, fine ticking cloth made of pure linen.

Basinas: The waste silk obtained from the residue cocoon after reeling.

Basin test: Modified permeability bag test in which a fabric test specimen is formed into a suitably supported bag and filled with water.

Basine: A silk fabric in which two sets of fine warps float over every two wefts and interlace with the third.

Basine's: Cocoons with frison removed; although unpierceable by moth, are not reelable or only partly reelable and are therefore used as waste silk for spinning. Also called Pelades. (French)

Basinetto: Waste silk obtained from the inner skin of the cocoon, which remains after reeling. See also **Ricotto, Bisou**.

Basis weight: The weight of a unit area of the fabric. It can be grams per square metre or Ounces per square yard.

Basket braid: A soutache braid, made with five threads, each thread passing alternately under and over two threads.

Basket cloth: Coarse cloth woven with regular or fancy basket weave. Sometimes twill derivatives are also used. See **Abbots cloth**.

Basket stitch: A knit construction; purl and plain loops are combined with a preponderance of the purl loops in pattern courses to give a basket weave effect.

Basket weave: A variation of plain weave in which two or more warp and weft threads are woven side by side to resemble a plaited basket. Fabrics have a loose construction and a flat appearance and are used for such things as monk's cloth and drapery fabrics.

Basmas: Closely woven fine linen or cotton cloth, made in Turkey.

Basolan DC Process (BASF): Wool chlorination process under mildly acidic conditions with the sodium salt of dichloroisocyanuric acid (Basloan DC) at pH4.

Basolan SW Process (BASF): Super-wash finish for wool with prepolymer Basolan SW, which cross-links into a soft film on the fibre on drying. Can be applied by padding or exhaust.

Basques: Middle 17th Century French word for short tabs at bodices and male douglets that extended below the waist. The jackets with basques were worn in combination with skirts instead of gowns.

Bass fibre: Very strong, straight, coarse and smooth fibre, yielded by the Raphia in West Africa; used for brushes.

Basse lisse: French term for low or horizontal warp in tapestry work.

Bassinas (also pelettes and tetelettes): The interior skin of the cocoon left after the reeling; used for floret or waste silk.

Bassine: (1) Palm fibre from *Borassus piassava*.

(2) Inner parchment-like layer of the cocoon skin (also termed Pelettes, Ricati and Galettame).

Bassiness (French): French term for taffeta ribbons.

Bassora gum: This vegetable gum generally occurs in the form of transparent, light amber to brownish-red irregular lumps that are sparingly soluble in water but swells readily into a thick gelatinous slime. It is having a high content of bassorin which is used for adulteration of gum arabica and gum tragacanth.

Bast: (1) Another name for phloem.

(2) Fibrous material obtained from the phloem of jute, hemp, flax, lime, etc.

Bast and leaf fibre: Fibre derived from the inner fibrous bark and hard coarse leaves of dicotyledonous plants, such as flax, hemp, jute, and abaca.

Bast fibre: Any of certain strong woody fibres used in making rope, cordage, etc.

Bast fibre bundless: Flax stem structure.

Bast fibre tow: Flax and hemp waste, etc. Short fibres which arise in the hackling process.

Bast fibres: A sub group of natural cellulosic fibres that form bundles or strands which act as hawsers in the fibrous layer lying beneath the bark of numerous dicotyledenous plants such as (a) flax (b) ramie (c) hemp (d) jute (e) sunn (f) kenaf (g) urena.

Bast layer: Flax and hemp waste, etc. Short fibres which arise in the Hackling process.

Bast liquor: A bath liquor, used in dyeing, that is prepared by acidifying soap solutions that have been used for the degumming of silk. It greatly facilitates the production of a level shade. Artificial bast liquor is prepared from a solution of gelatine in soap solution.

Bast soap; Degumming soap: A term used for the soap used in the degumming of natural silk which contains variable proportions of silk gum removed from the silk fibres, but useful as a protein material. Used as a dyeing auxiliary with levelling properties.

Bast tape: A tape product consists of warp ends stuck together, with no weft ends produced from glazed yarn or artificial horse hair.

Bastancini: Fine, sheer and bleached linen that is finished with stiffener and bluing.

Bastard: (1) General term for substitute; (2) A woollen fabric made in England during the reign of Richard III.

Bastard aloe: Strong, leaf fibre yielded by the Aloe vivipara in North-western India; used for ropes.

Bastard: Any fabric woven in imitation of better and more expensive.

Bastard vat: Combination of the Wood vat and sodium carbonate (the first as vat preparation and the second for continuation of the dyeing process). Formerly used for the dyeing of wool with indigo.

Bastard velvet: It is placed between the velvet and plush as to fineness and length of pile.

Baste: It refers to long and temporary stitches that hold layers of fabric together. It can be done by machine or hands baste.

Bastella: A cellophane product into which narrow cotton threads have been incorporated, thereby producing a reed-like appearance. Uses: hat trimmings (braiding), etc.

Basting: Temporary stitching either by hand or machine in the preparation of work to hold garment parts (stuff and lining or any two or more parts of the work together while it is being stitched) in the correct position for subsequent permanent operation, none being left in the finished garment. It is also used as a guide for sewing, feather stitching, etc.

Basting cotton: Cotton thread, used for basting; is similar to sewing cotton except that it is weaker and is not finished as smoothly.

Basting needle: This hand-sewing needle is curved to make basting and tying quilts easy.

Basting stitches: See **Basting**.

Basto: Indian name for heavily sized bleached cotton shirting or bleached long cloth, earlier imported, used for shirts, caps, bed covers, etc.

Basuto: A commercial grade of South African mohair.

Bataloni: Made of hemp warp and cotton filling, usually dyed in light-blue colour.

Batarde: (1) Black wool used as a substitute for vicuna wool; (2) Solid coloured French serge made with 10 warps and five picks in a repeat.

Batavia: (1) French term for a twill weave forming diagonals; (2) Serge made at least with four harnesses.

Batch: (1) A group or set of usually similar materials for processing at one time as a collective unit.

(2) The process of winding cloth on a roller after it has been passed through a dye or chemical solution for a process in which the goods have to be left saturated with dye solution/chemical solution for some period of time, typically for hours, and typically at room temperature for the dye to fix onto the fibre or the chemical to react on the fibre. In commercial processes, batching mostly follows padding.

(3) The process of softening jute.

Batch process: A batch dwell process; E.g. cold pad batch process.

Batch roll: See **Batching roll**.

Batch rotation: Batching piece goods on to the roller out of the treatment liquor.

Batch steamer: Cylindrical steamers in various constructions like horizontal steamers, vertical steamers, used for discontinuous steaming process especially printed goods.

Batching centre: In yarn packages these are the tubes on which yarn is wound. In the case of piece goods, they are the metal or wooden rollers on which fabric is wound.

Batching roller: Also called batch bearer, batching roll. Cylindrical support (with square inserts) for open-width piece fabric batching.

Batching tension control: On a large batch, woven fabrics have to be batched under constant tension. The compensator roller determines the batching tension, and, via a microprocessor, regulates the batching speed.

Batch-path: Commercial term for immature jute fibre from India.

Batch-wise processing: The processing of materials as batches or lots in which the whole of each batch/lot is subjected to one stage of the process at a time.

Batenburg lace: See **Battenberg lace**.

Bates: Two commercial varieties of cotton from South Carolina, the staple measuring 24–27 mm and yielding about 33% lint.

Bates process: A cotton scouring and bleaching process in which fabric impregnated with bleaching chemicals is placed between electrodes and heated to the boil.

Bath: The liquid-filled treatment zone in dyeing, washing, finishing and dry-cleaning. The liquid medium is referred as ‘Liquor’. Standing bath is one in which the bath is stationary whereas in circulating bath the liquor is circulated.

Bath brussels: Name given to the Devonshire lace, in the 18th century.

Bath coating: Light baize of wider width and long nap, comes in white or coloured; used for petticoats, bath robes, overcoats, etc.

Bath exhaustion: A term used for exhaustion at of the dye at equilibrium, generally expressed as that percentage of dye originally applied which has been removed from the bath by absorption on to a textile substrate due to the forces, if affinity.

Bath mat: An absorbent textile floor covering normally used in the bathroom as a pad on which to step when getting out of a tub or shower.

Bath robe: A long gown to be worn between bath room and dressing room.

Bath rug: A scatter rug used in the bathroom.

Bath sheet: A textile terry product with end hems or fringes and side hems or selvages that is generally much larger than bath towel.

Bath towel: A textile terry product with end hems or fringes and side hems or selvages, which is used to dry a person's body after bathing or swimming.

Bathik (Batik): Actually, it is a method of printing in which using a wax resist and dyeing a printing effect is produced. A dyeing method originated in Java using wax resists. Traditionally, wax resist is made on the cloth using special equipment (Tjanting) and the fabric is given mechanical breaking action to give the typical cracking effect while dyeing. The fabric is then dyed with one colour of the print by dip dye method. The wax is removed by dipping in hot water or soaping solution and then the dyeing is washed and dried. Again the wax resist is applied all over the other part of the fabric, except where the second colour has to be applied. This colour is then dyed and the wax is removed afterwards as explained earlier. The entire remaining colour is dyed/printed the same way till the required effect is achieved. It is very laborious and time consuming work. Hence, few colours are made by over dyeing a second colour over another colour. The resultant designs are bold and uneven and streaked where the white or cream background fabric shows through the colours. Sometimes mixtures of Batik, screen printing or block printing techniques are used to give the same effect; at the same time, the whole work is made simpler and less complicated. It is needless to say that, all the dyes used has to be cold dyeing dyes as otherwise the wax resist will not stay while dyeing.

Bathik printing: See **Batik**.

Bathochromic group: Colour intensifying group in a dye structure.

Bathrobe blanketing: A double faced fabric woven with a tightly twisted spun warp and two sets of soft spun filling yarns. The fabric is thick and warm

and its filling yarns are frequently napped to produce a soft surface. Today's blankets are made of spun polyester, acrylic or polyester cotton blend.

Batiste or cambric: (1) (i) The finest grade of linen, woven plain in grey colour, then bleached; there are several grades as the batiste claire, which is very light and loosely woven, the batiste demi-claire is of stronger yarn and closer texture; the batiste hollandee is closely woven with a body; the batiste linen is still stronger; the Scotch batiste is a fine, printed cotton dress 'goods; (ii) White or coloured cotton muslin, finished with a heavy size; used for summer dresses, linings, etc.

(2) Cotton or polyester/cotton soft fine, to very fine tightly woven fabric of the lawn family in plain weave slightly heavier than voile. Often highly mercerized, bleached, dyed or printed and sometimes embroidered and wears well. Resembles nainsook but finer with a lengthwise streak. Coloured woven batiste is not batiste; it is called macozefir.

(3) Sheer fabric of manmade fibre like rayon with dobby woven stripes, jacquard patterns.

(4) A light weight woollen fabric in plain weave like cambric. It should be of all wool construction unless otherwise described.

(5) A smooth, woven fine fabric that is lighter than and very similar to nun's veilings.

Batnas: Three-coloured calico, made in India.

Baton rompu: French plain serge, made with eight warps and four picks in a repeat.

Batswing: A thick, coarse cloth, woven in grey into the shape of a seamless petticoat.

Batt: Single or multiple sheets of fibre. These are used in non-woven fabric production, felts, etc. Synonym with web.

Battenberg braid: Cotton or linen tape with picot edge; used for laces and curtains.

Battenberg lace: A coarse-type lace, often made from linen thread and used mainly in small areas, such as collars and cuffs; although, it is popular heavy curtain lace.

Battening: As the shuttle moves across the loom laying the weft yarn, it also passes through openings in another frame called reed (which resembles a comb). With each picking operation, the reed presses or battens each filling yarn against the portion of the fabric that has already been formed. The point where the fabric is formed is called the fell.

Battery: A device for holding reserve bobbins (or pirns) of weft in vertical or circular housings or shuttles in a vertical housings.

Batting: A soft, bulky assembly of fibres usually carded. Battings are sold in sheets or rolls made of cotton or polyester, and used for warm interlinings comfort stuffing, quilting, in quilted fabrics and other thermal or resiliency applications.

Batting integrity: The ability of a textile filling material to resist distortion or change when subjected multiple launderings or dry-cleaning.

Batt-on-base woven felts: Non-woven textile fabrics composed of ground fabrics and one or several fibrous webs which are consolidated and bonded with the ground fabrics.

Battlemented: In embroidery, a pattern similar to the battlement of the old fortresses.

Battleship grey: The bluish-grey colour in which battleships are often painted.

Batuz: (1) Needlework consisting of sewing upon silk as a part of the pattern to be made, very thin plates of gold or silver, these plates often being hammered into low relief. Now obsolete; (2) Silk fabrics, ornamented with hammered gold leaves, used in France during medieval times.

Baudekin: See **Baldachin**.

Bauge: A stout, thick, twilled fabric, similar to droguet, made of coarse wool in Europe.

Bauhinia: Bast fibre of various East Indian trees; dark reddish-brown, very strong; used for ropes, nets and coarse cloth.

Baume' (degrees): A frequently used but unscientific scale of measuring the relative density of liquids by hydrometry using the Hydrometers. The division in the scale of the hydrometer is based on: density of distilled water at 4°C is 0°Be and the density of 10% sodium chloride solution is 10'Be. This separation is divided into 10 sub-divisions, and the scale is continued. The relation between specific gravity and Baume is as follows: For liquids heavier than water d = 144.38/(144.3-'Be) and for liquids lighter than water d = 144.38/(144.38+°Be).

Bave: It is the silk grey yarn as it is without degumming. It is the silk fibre complete with its natural gum, as it is withdrawn from a cocoon formed by a silk worm. It comprises two brins that are cemented together by the gum or sericin.

Bay: Reddish-brown or chestnut colour used particularly in the description of horses; hence 'bay-coloured' and 'bay-brown'.

Bay, Bayes: (1) A fabric in England made of worsted warp and woollen filling, often mixed with silk, made for clothes by religious societies, popular in 16th and 17th centuries.

(2) A loosely woven, plain woollen cloth, similar to a coarse flannel, napped on one side and made usually in white, black, red or green. It is called baigue in France.

Bayadères: (1) While pekins are formed by warp stripes, bayadère shows us stripes of different weaves running in the direction of the filling. The rules given in the pekins as to the joining of the weaves will also apply here. The warp, which was raised on the last pick of the weave must stay down wherever possible on the first pick of the following weave. The number of shafts employed must go up evenly in the repeat of each one of the weaves that go into the make-up of the bayadère.

(2) A very broad term for stripes that run cross-wise in a knit or woven fabric.

(3) Made of silk in cross-wise rib (plain or twill weave). It has brightly coloured stripes in the filling direction. Often black warp. The colour effects are usually startling or bizarre. Mostly produced in India. Name derived from the Bayadere dancing girl of India, dedicated from birth to a dancing life. The Bayadere costume includes the striped garment, a flimsy scarf or shawl, jewelled trousers, spangles, sequins, anklets. Uses: Blouses, dresses, after 5 wear.

Bayberry wax: Bayberry wax is obtained from the candleberry plant and is chemically a fat. However, its wax-like nature stems from the fact that it is mainly made up of stearic, palmitic and myristic triglycerides. It is used in textile sizing compositions because it can be easily saponified during the desizing operation.

Bayes: Plain and loosely woven wool fabric, napped on one side and obsolete. See **Bay**.

Bayeta: (1) Coarse, home-spun woollen, usually piece dyed in red, blue or green, and napped; used for ponchos, etc., by the natives of Peru and Bolivia.

(2) Full woollen fabric, usually black, navy or dark green; used for skirts in Colombia.

(3) Scarlet woollen blanket, woven by the Red Indians. It is of single strand wool which is obtained from baize by unravelling it; there is a nap on the blanket.

Bayeta de Cien Hilos: Wool flannel made in Latin Americas, having a very long nap and twill weave; the wide selvage used to have four blue stripes on white ground.

Bayeta de Faxuela: Coarse woollen baize made in Peru, dyed red, blue and green; used for ponchos, etc.

Bayeta de Pellon: Coarse wool flannel that is woven like a serge, having a very long nap; used in Latin Americas and China for bed covers, etc.

Bayette or Baguette: Loosely woven, plain, woollen fabric, similar to a coarse flannel, napped on one side, dyed in white or black shade; made in France, England, etc. In France it is also called baigue. See also **Bay**.

Bayeux lace: Closely resembles the Chantilly. In the 18th century, first silk laces were made in ecru and then in white.

Bayeux tapestry: A piece of linen that is 214 feet long and 20 inches wide, containing in 72 groups the representation in coloured wool embroidery.

Bayko: A yarn or thread having a core impregnated with a smooth metallic coating in any colour; used for weaving, knitting, embroidery, etc.

Bayonet spiral: Part of a shearing and cropping machine. The term is used to describe the upper shearing cylinder blade profile in shearing and cropping machines.

Bays: Coarse English worsted and woollen fabric that was worn by the peasants in Queen Elizabeth's time. See **Bay**.

Bayutapaux: A coarse cotton cloth with blue and white or red and white stripes, usually available in the African markets.

Bazaar dyeing: A unique ancient dyeing process still in use today with simple home produced equipments.

Bazac: A Palestinian made, evenly spun, fine, bleached cotton yarn.

BB: Short form for Batt-on-base.

BB felt cloth: Batt on base woven felts.

BC: Code designation for Boron (nitride) fibres in accordance with air travel standards.

BCF yarns: Bulked continuous filament yarns of high linear density, used as pile yarn for carpet trade, usually nylon, polypropylene or polypropylene.

Beach cloth: Very light fabric, made usually with cotton warp and mohair filling in colours and designs, having good light fastness and chlorine fastness; used for men's wear in summer.

Bead In Zippers: An enlarged section on inner edge of each tape to which scoops are affixed.

Beaded: Referring to garments decorated with beads.

Beaded seam: Beaded seams used for fine white work having a line of beading overhanded between gores, hems, or gathers. The hem along the seam should be folded on the right side, leaving a perfectly flat surface to iron on the wrong side, and finished with an ornamental stitch covering the hem.

Beaded selvage: See **Loopy selvage**.

Beaded velvet: Velvet with a cut-out pattern or a velvet pile effect, made on a Jacquard Loom. This fabric is used primarily for evening wear.

Beading: (1) On pillow lace, a simple heading; (2) Narrow, machine-made insertions, made with openwork to draw or bead a ribbon through or for trimming.

Beading lace: This describes very narrow insertion laces. These are often open-work hemstitching or faggot stitch, or they may have slits for inserting ribbons.

Beading needle: These hand-sewing needles are very long with a small eye. They range in size from 10 to 15.

Beam: (1) A cylinder of wood or metal, usually with a circular flange on each end, on which warp yarns are wound for slashing, weaving, and warp knitting.

(2) A perforated barrel on which the fabric or yarn is wound for dyeing in a beam dyeing machine. See **Beam dyeing machine**.

Beam set: One or more beams of yarn in a single shipment to be further processed together for a specific end use.

Beam setting: The process of setting of yarns or fabric made of synthetic fibre or their blends on a beam dyeing machine. The fabric or yarn is wound on the beam as in the case of dyeing and set in the machine at the dyeing temperature (say, 130–140°C).

Beam dyeing machine: HT autoclaves for piece goods or atmospheric machines for the dyeing of warp beams. These machines are available as horizontal or vertical with various dias (say 1,000mm to 1,500mm) and widths up to 4,000mm and working pressures of 5 bar max and temperature up to approximately 135°C. Warp yarn or piece goods are wound onto a special beam. The barrel of which is evenly perforated with holes. The dye liquor is forced through the yarn or fabric from inside to outside or vice versa by which the fixation condition of the dye is maintained in the autoclave.

Beam warping: The transferring of yarn from bobbins or cheeses onto a warp or section beam in the form of a wide sheet. Several of these beams are run through the slashing machine to make one loom beam.

Beaming: The operation of winding warp yarns onto a beam, usually in preparation for slashing, weaving, or warp knitting. Also called warping.

Beaming machine: A machine which winds the individual yarn ends from a rope-like bundle and distributes them evenly over a section beam.

Beaming the warp: It is the process of winding the warp on the warp beam. The layers are usually separated with sturdy paper or warping sticks.

Beamroll: See **Beam**.

Bear grass: Coarse and very strong fibre, yielded by the Yucca fllamentosa plant; used for twine and cordage.

Beard test: See **Test, beard**.

Bearded spring needle: See **Spring needle**.

Bearding: Fuzz on loop pile carpets, usually resulting from poor anchorage or fibre snagging.

Beater: (1) The machine which does most of the opening and cleaning work on a fibre picker and opener. Revolving at high speed, it beats against the fringe of fibre as the latter is fed into the machine.

(2) A machine used in the paper industry for opening pulp and combining additives.

(3) The beater is a frame that holds the reed. It is attached to the loom by an upright on each side that pivots to pull the reed through the warp and "beat" the weft in place at the fell of the clot.

Beater opener: Device for opening-out fabrics in rope form. The most important component is the rapidly rotating beater roller with beater blades.

Beater rollers (vibrator rollers): Employed in open-width washing machines to provide increased mechanical action on the running fabric, thereby intensifying liquor movement.

Beating machines (beaters): (1) Beating machines are used for the finishing of pile fabrics (velvet, plush, etc.) in which the back side of the fabric is subjected to a beating action which results in better alignment of the pile on the face side.

(2) A type of machines used for the cleaning of carpets and other textiles which cannot be subjected to washing treatments. Dirt is removed by an intensive beating and brushing action and suction.

Beating up: The third of the three basic motions in weaving operation of the loom in which the last pick inserted in the fabric is "beat" into position against the preceding picks or forced onto the fabric.

Bearskin: Woollen twill fabric that is heavy, thick and having a heavy nap on the face and used for coating.

Beatrice: A weft twill weave, made 4 by 1.

Beau: Ideal narrow strips of machine-made imitation of English embroidery.

Beaujeu: French hemp canvas, about 27 inches or more wide; it was used for furniture cover in olden days.

Beaujolais: French cloth made of cotton and linen.

Beaufort: A stout hemp sailcloth, made in France.

Beaupers: A woollen fabric of unknown structure, mentioned in 17th Century English writings.

Beaver cloth: It is made of high-quality wool and this material is heavy, expensive, firm-textured but soft fabric; has deep naps which are cut and laid smoothly in one direction. The lustrous nap of short fibre is produced by milling the cloth and raising the fibres. It is heavy weight woollen fabric with solid colours. Made in many combinations of double cloth weaves, it wears well. It has a soft handle with longer nap, and supposed to have the appearance of a natural beaver skin. Beaver cloth is frequently used in overcoats and winter jackets for men and women.

Beaverteen: A lighter grade of moleskin; it is piece dyed or printed to resemble worsted and napped on the back; used for men's wear.

Beby: Cotton scarfs that are usually dyed blue, made in Syria.

Beck: A dyeing vessel for dyeing fabric in rope form, consisting primarily of a tank and a reel to advance the fabric. Beck is a frequently used American term for 'open winch dyeing machine'.

Beckmann thermometer: A type of mercury thermometer which is designed to measure small differences in temperature rather than scale degrees. Beckmann thermometers have a larger bulb than common thermometers and a stem with a small internal diameter, so that a range of 5°C covers about 30 cm in the stem. The mercury bulb is connected to the stem in such a way that the bulk of the mercury can be separated from the stem, once a particular 5°C range has been attained. The thermometer can thus be set for any particular range. It is named after the German chemist Ernst Beckmann (1853–1923).

Bed (in sewing): A sewing platform which supports the needle plate and slide plate. It contains the lower sewing mechanisms.

Bed sheeting: Name originally used for plain weave cotton fabrics used for bedsheets; now used more loosely. One common construction is 64 square with 20s warp and filling. Also called muslin sheeting, it includes a wide variety of cloth. Usually starched and calendared to give appeal to cover up inferior construction, the coarsest materials border on bag sheeting. A fine

muslin sheeting will have a structure 64 square with 40s count yarn [In some places, the width is given in quarters of yard (1/4 yard = 9 in). Thus, an 8 quarter sheeting is 72 in wide and 10/4 sheeting is 90 in wide].

Bed-covering: A textile product used on a bed over the sheets for warmth or decoration.

Bed lace: Sort of binding, made of white cotton, twilled or figured, employed for binding dimities. Used also for furniture, when it is printed.

Bedford cloth: See **Bedford cord**.

Bedford cord: A woven cord fabric in plain weave that is used on the face side of the cord. It is a rib weave fabric with raised length-wise cords produced by using stuffing thread in the warp. The wales are wide and stiffer yarns are usually present. There are weft floats that determine the width of the cords on the back, and wadding ends may be used to accentuate the prominence of the cords Made with carded cotton yarns, woollen or worsted yarns, viscose, acetate, polyester or combinations of these yarns. Other weaves are also used sometimes. Used for upholstery, suits, riding habits and work cloths. Light Bedford cord are used for dresses and children's clothes. Originated in Bedford, United Kingdom. Massachusetts also claims the honour, but apparently Bedford origin is more accepted.

Bedfordshire lace: English bobbin lace, introduced in the 17th Century. It is similar to the L'ille lace made with reseau ground and wavy, geometrical patterns.

Bedspread: A type of bed covering that is placed over the blankets and sheets for appearance and warmth.

Bedstout: Striped or solid coloured stout cotton, woven in four-leaved twill. Also called inlet.

Beech-green: A shade of green.

Beer: An arbitrary but customary number of threads (in Leeds 38, in Bradford 40 threads) which is sometimes taken in England as a unit to express the warp ends of a fabric.

Beer Lambert's Law: A useful measure of the strength or intensity of the colour of a dye is given by the molar extinction coefficient (e) at its L max value. This quantity may be obtained from the UV/visible absorption spectrum of the dye by using the Beer Lambert's law, i.e.

$$A = ecl$$

where A is the absorbance of the dye at a particular wave-length, *e* is the molar extinction coefficient at that wavelength, *c* is the concentration of the dye and

l is the path length of the cell (commonly 1 cm) used for measurement of the spectrum. The Beer Lambert law is obeyed by most dyes in solution at low concentrations; although when dyes show molecular aggregation effects in solution, deviations from the law may be encountered.

Bees wax: (1) Bees wax is a yellow-red-brown, pleasant odour, brittle when cold. Its melting point is 61.5–68.0°C and is soluble in turpentine. It has white spirit and hot fats and is used in textile sizing, finishing and water repellent treatments.

(2) A dark-orange colour.

Beet: (1) Deep purple-red that is named after the vegetable of the same name.

(2) A bundle or sheaf of tied flax crop or straw.

Beetling: The process in which the round linen fibres are given a flattened effect by pounding the yarn called beetling. This makes the yarn flat and hence shining. Mask, etc., made by using beetled yarn are more lustrous and have a leather-like texture. Beetling is also used to give a thread- or linen-like appearance to cotton.

Beetling calendar: A heavy calendar, usually with 6 bowls; the lower and uppermost are heater steel bowls and the intermediate ones are elastic cotton bowls. The fabric while calendaring, passes through all the rolls producing a beetling effect.

Beetling effect: A unique effect imparted on cotton/linen fabric by calendaring in a beetling or chasing calendar.

Beetroot red: The deep reddish-purple of the vegetable, beetroot.

Beeze: Piping or cording formed at lower and inside pocket welts.

Begasse: Trade name for the short waste fibres which have their way out from the sisal hemp during the scraping process.

Beggars' velvet, also Velours de Gueux: A Lyons velvet of linen warp and cotton filling and pile.

Begonia: Yellowish-red colour found in the flower of the same name.

Beguin coarse: Stout fabric, made of natural coloured wool; used for garments by religious orders.

Behaai: Sort of Indian cotton muslin.

Beiderwand: It is originated in Europe; it was especially used in the Schleswig-Holstein area of Germany where it was used for coverlets and bed curtains.

Beiderwand coverlets were woven in North America in the nineteenth century. Historically, beiderwand coverlets most likely were woven on jacquard looms. In its construction, first and second shafts are reserved for the tie-down ends. Each block in the draft requires two shafts, so a three-block pattern requires eight shafts, six for the three blocks, plus two for the tie-down ends.

Beige: A term for cloth in the natural or undyed state; the French word for natural. The source of the terms greige, grey or gray, from which it was corrupted. They also refer to unfinished and undyed goods. The colour beige is dyed in a wide variety of textiles and is not to be confused with this definition.

Beige: A light-brown or yellowish-grey colour. Popular for fashion fabrics but 'renamed' camel, taupe, stone or sand to avoid appearing dated. Beige has the same meaning as écru and grège, each being French terms for wool or cloth in its unbleached condition and originally designating a grey colour. First recorded as a colour in 1879.

Beige damas: Natural coloured thin worsted dress goods made with Jacquard figures.

Beilik: A coarse Turkish woollen or cotton scarf.

Beistain test: Used for detection of substances containing any halogen, e.g. synthetic fibres (such as polyvinyl chloride or vinyl chloride copolymer fibres).

Bejuco: Tough, very dark coloured and coarse fibre, obtained from the bark of a creeper in South America; used for heavy cordage.

Beldia: A very heavy shrinking, coarse wool of Morocco.

Beledin: (1) A type of raw silk from the Levant; (2) An inferior grade of cotton yarn from the Levant.

Belelac or Belelais: A type of East Indian silk taffeta.

Belesmes: Coarse hemp canvas, used as ticking that is made in France.

Belgian laces: Include *Antwerp*, *Brussels*, *Malines* and *Valencienne* laces, all pillows, except the modern Brussels point-gaze. At the present, the grounds are machine made and the patterns or twigs on the pillow are man made.

Belgian: Tapestry English jute drapery with an admixture of linen.

Belgian ticking: Stout linen and cotton fabric with satin face. Used for upholstery and bedding.

Belgrade braid: Open work flat braid, made of cotton yarn, sized and glazed to imitate straw braid; used for millinery.

Belgravian embroidery: Patterns of leaves are traced on a broad braid, filled in with bugles sewn with floss silk and then the braid is cut around the edges of the leaves.

Belinge: Stout twill suiting fabric made with linen warp and woollen filling, made in France.

Bell isles: Eighteenth century woollen fabric made in England.

Bell steamer: See **Batch steamers**.

Bellacosa: Brocaded silk cloth, inter-woven with gold and silver threads which is made in imitation of the old Venetian brocades.

Bellchester: A type of English velvet.

Belle creole: A commercial variety of American cotton, having a long, strong, soft and silky staple of high percentage of yield.

Belleric, beleric: An Indian fruit producing a black dye; the dye itself.

Bellies: The coarser quality of wool from the underside of sheep.

Belt accumulator: See **Narrow fabric accumulator**.

Belt brushing machine: Finishing machine for corduroy fabric and velvet.

Belt duck: See **Number ducks**.

Belt filter press, belt press, filter belt press: A method for the mechanical dewatering of sludge. Conditioned sludge is placed onto a belt (typically 2 m wide) to allow drainage of liquid from the sludge. This belt then meets a second belt. The two belts with the sludge sandwiched between them pass round a series of rollers to introduce increasing sheer and compressive forces on the sludge. Waste-water sludge can be dewatered to 20–35% solids. It is a continuous process unlike the filter plate press.

Belt loop: A loop of material or thread which is sewn into the waist of a garment to receive a belt.

Belt screen: In water and waste-water treatment, a screen that is a sloping conveyor belt with holes in the belt to allow the water to flow through. Some solids are caught on the belt and drop off into a container at the top of the belt. The holes are often about 6 mm wide and 20 mm or more in length.

Belting: (1) A narrow, very stout warp-face fabric, woven plain or in satin weave, made of cotton or hemp, also hair, used at the waistline in skirts, waists and other garments; it comes usually black, white or grey.

(2) A narrow elastic fabric, made of cotton, wool or silk, often ornamented with woven figures, used for dress belts.

(3) A very heavy and strong narrow fabric of cotton, hemp or linen, used for power transmission. Now a days, mostly made in synthetic fibres like Nylon, Polyester, etc.

Beluchistan: Heavy rugs made of wool, goats and camel's hair, the long pile is tied in Senna knot. The design consists of geometrical figures, angular hooks, etc., in rich, dull reds, browns, blues mixed with a little white.

Belwarp: English worsted fabric with corkscrew pattern.

Bemberg: Trade mark of early cuprammonium rayon produced by the American Bemberg Company. Fabric is still labelled 'Bemberg' but must include fibre content description as well.

Benares: Light weight cotton/silk fabric from India. Usually woven with metallic threads. Often in woven design.

Bench marks: Marks placed on a specimen to define gage length, that is, the portion of the specimen that will be evaluated in a specific test.

Bending elasticity: Partly elastic partly permanent shape change of yarns and woven fabric in the bending test as a criterion of creasing, the so called angle of recovery, which occurs after folding or bending under load and subsequent relief, and is at best 180', playing an important role.

Bending length: (1) The cube root of the ratio of the flexural rigidity to the weight/unit area.

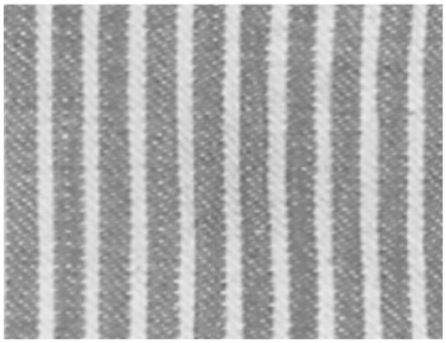
(2) A measure of the interaction between fabric weight and fabric stiffness based on how the fabric bends in one plane under its own weight (under the force of gravity).

Bending modulus: Maximum stress per unit area that a specimen can withstand without breaking when bent. For fibres, the stress per unit of linear fibre weight required to produce specified deflection of a fibre.

Bending rigidity: See **Flexural rigidity**.

Benedict-Denis reagent: A reagent used quantitative sulphur determination in wool. It is a solution of 25 g of copper nitrate, 25 g of sodium chloride and 10 g of sodium nitrate in 100 ml of water.

Bengal stripes: Bengal stripes is a name given to a type of gingham consisting of white and coloured stripes, alternatively arranged in small effects in regular order, the coloured yarn having been dyed with Indigo. They were originally made in Bengal, India, where many species of plants producing Indigo were grown.

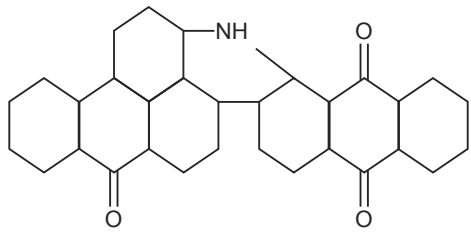


Bengaline: (1) A cloth with more or less striking warp-rib appearance running across the fabric similar to faille, only heavier, with a fine weave and width-wise cords. Originally, bengalines were made of a silk, wool, or rayon warp with a worsted or cotton filling and used for dresses, coats, trimmings, and draperies. Modern bengalines are made with filament acetate or polyester warps. Also, some bengalines have fine spun warps with 2- and 3-ply heavier spun yarns filling cord effects. The warp rib or carded effect may be produced by employing (1) suitable thickness and setting of warp and weft threads or (2) suitable warp rib weaves or (3) a combination of (1) and (2).

(2) It originally came from Bengal, but an imitation is the familiar crosswise rib fabric-made viscose, silk, wool or cotton. Similar to poplin, or fraille in appearance, but heavier. Used for coats, suits, dresses and ribbons, can also be made as curtain fabric.

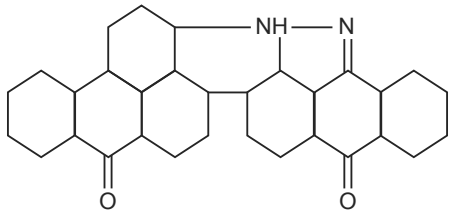
Benham's disk: A disk with black and white markings which when spun creates the illusion that the disk is coloured.

Benzanthronylamino anthraquinone: *Anthraquinone* dyes of the *Benzanthronoid vat* dyes group. Example is condensation of 3-bromobenzanthrone with 1-aminoanthraquinone in boiling naphthalene in the presence of sodium carbonate and copper oxide. Cyclization with potassium hydroxide in isobutanol.



Vat olive green

Benzanthronylpyrazole-anthrone: Anthraquinone dyes of the Benzanthronoid vat dyes group. Example is the condensation of 3-bromobenzanthrone with anthrapyrazole and melting the product with alcoholic potassium hydroxide.



Vat navy blue R

Benzene: Colourless to light-yellow, mobile, non-polar, highly refractive liquid with a characteristic aromatic odour. C_6H_6, mol. Wt.78.06, density at 15°C 0.885, b.p 80.15, f.p. 5.5°C. Not to confuse with Benzine. The hydrocarbon source for many manufactured fibres.

Benzine soaps: Fat-solvent soaps of various compositions (often with high ethanol content) and consistencies (liquid, semi-solid, solid). By reducing the spontaneous combustion of benzene, they facilitate dry-cleaning in organic volatile solvents.

Benzoate fibre: Fibre with a silk-like hand-made from a condensation polymer of p-(Bhydroxyethoxy) benzoic acid.

Benzylating agents: These are used as auxiliaries in discharge printing of vat dyes to form water soluble bezlated products and leuco compounds which can be easily washed-off.

BEP: Break Even Point.

Berber carpets: Rustic knotted carpets in natural colour, hand woven by north African tribes from wool yarn, also spun by hands from local sheep wool. They contain a proportion of naturally pigmented wool and tribal motifs. Now a days, the same term is also used for carpets made of natural-coloured wool or dyed fibre with homespun appearance.

Berberine: A yellow dye obtained from the African tree of the same name.

Berdin: Wool rags in the finer machine knitted grades.

Berettino: A bluish-grey hue used in the glazing of the Italian pottery, Maiolica.

Berlin blue: A dark-blue dye, soluble in oxalic acid. It gives a bright-blue shade which is sometimes used for blueing bleached goods. Also called Prussian Blue, Paris Blue, Turnbills Blue, etc.

Berlin silk: A type of cordonnet or crocheting silk made by twisting 4–8 single yarns with a right hand twist and then twisting 3 of these with a left hand twist. The yarn is high twist and therefore round, smooth and hard.

Berthe, Bertha: Loose collar or neckline insert for women.

Beryl: Pale sea-green or greenish-blue being the colour of the stone, beryl; hence berylline – of the colour of beryl.

Besom: An edging or reinforcement around a pocket opening.

Bespoke: Clothes made to order of an individual.

Beta cellulose: One of the three forms of cellulose. It has a lower degree of polymerization that the alpha forms. With gamma cellulose it is known as hemicellulose (Also see **Alfa cellulose** and **Gamma cellulose**).

Betanin: The natural colourant made from the beetroot; see also **Beet red**.

Beverteen: A heavy cotton cloth used for men's hunting garments.

Betweens needles: These hand-sewing needles are short, fine needles with large eyes are most frequently associated with quilting, but are also used for fine hand sewing. Sizes 3 to 12 are available.

Bezold effect: The optical effect, named after its discoverer, Wilhelm von Bezold, where by changing one colour in a pattern (for example in a rug design) the whole appearance of that rug changes.

BFTC: British Fastness of Textile Committee.

Bias: (1) Direction at an angle to the warp and weft. True bias is at an angle of 45° to both warp and weft or to grainlines.

(2) See **Skewness**.

Bias (statistics): A constant or systematic error in test results.

Bias binding: A product made by cutting wide-woven fabric at an angle of 45° to the selvedge. Most bias bindings have regularly spaced joints governed by the width of the original fabric, but if converted from tubular fabric than the joints are avoided. Bias binding do not fray and will stretch and they are thus suitable for binding seams and conforming to curve contours. Most bias bindings are folded into the centre, but flat versions are also in use.

Bias fabric: A two-dimensional fabric that when oriented in the XY plane contains fibres that are aligned in a different direction, i.e. 45° to the x-axis fibres.

Bias facings: All facings around curves, such as arm holes and neck, should be a true bias which is cut by holding the warp threads diagonally across the woof threads. These strips for facings, pipings, ruffles, etc., should be cut

exactly even in width. All bands, ruffles, etc., of serge, twilled, or diagonal materials should be cut across the twill and not with it, in order to have the ruffle hang well.

Bias filling: A fabric defect in which the filling yarn does not run at a right angle to the warp. The principal cause is improper processing on the stenter frame (Also see **Bow, Skew**).

Bias hem: All bias and curved edges should have the first fold basted. In cloth or silk, this first basting thread should match the material and not be taken out.

Biaxial fabric: Conventional fabric construction consisting of one warp thread system and one weft thread system.

Biaz (Linen finish suiting): It is a medium-grade cotton fabric, resembling linen in appearance. This effect is usually got on ordinary cotton yarns in the finishing process or by mercerizing the yarns or by fabric mercerizing. Usually manufactured in white. The name Biaz comes from the place it originated, called Biax in central Asia. It is pronounced as be'az, also called Linen finish suiting in a few places like United States of America.

Bibibaff: The finest quality of *Bhaktiari* carpets with a single wet thread construction.

Bice: The pale blue or green obtained from **smalt**. There is no settled view as to the origin of this word. It is thought that the word derives from the Latin '*azura debilis*' meaning a weak blue as compared with the richer pigment '*azura pura*' meaning the best blue. Ball in *The Invention of Colour* has a contrary view, namely, that in the 14th century 'bys' meant 'dark', but 'bys' eventually detached itself from the colour 'azure bys' and came to be used to describe the colour rather than its shade. 'Bice' subsequently became a generic term for a pigment based on copper.

Biceps line (in sleeves): Cross grain at bottom of cap.

Bi-chromate after treatment: Treatment of direct dyed textile materials with Bichromate to improve wet fastness properties.

Bi-chromate/Copper sulphate after treatment: Treatment of certain direct dyes with copper sulphate/bi-chromate in order to improve the wet and light fastness properties.

Bi-chrome: Having only two colours.

Bi-colour: Modest shading effect using yarns of two different shades.

Bi-component fibre: Manmade fibre combinations composed of two distinct and inseparable components having different physical or chemical structure join together as a single fibre either in layers side-by-side or in mixtures with a homogeneous distribution.

A fibre or filament consisting of a continuous matrix of one polymer in which different fibre forming polymers are dispersed as a second discontinuous phase. A fibre formed by the conjunction at a spinning jet of two fibre-forming polymers of different properties.

(a) The two components may be caused to merge approximately side by side (bilaterally), concentrically or as fibrils of one component in a matrix of the other. An example is the production of crimped fibre, e.g. a combination of polymers of different contractive properties. (b) Although formed by a natural process, wool and related animal fibres may exhibit a comparable dual structure of the cortical cells. Also called bilateral fibres, composite fibres, etc. See also **Composite fibres**.

Bi-component spinning: Bi-component spinning normally involves twisting together either a filament (sometimes water soluble) and a conventionally drafted staple (cotton) strand during the spinning operation, and is particularly attractive for the cost-effective production of superior yarns which can, for example, be woven or knitted without any further operations (i.e. eliminating plying, sizing and steaming). It also enables coarser fibres to be spun into finer yarns, reduces spinning end-breakages, allows higher winding speeds and enables yarn and fabric properties to be engineered by suitable selection of the two components and the way in which they are combined.

Bi-component yarn: Spun or filament yarn of two generic fibres or two variants of the same generic fibre.

Bi-conical package: A conical yarn package in which the traverse length is progressively reduced to produce tapered or rounded ends. Such packages are also described as tappered or pineapple cones.

Bi-constituent fibre: (1) Bi-component fibres of the matrix-fibril (M/F) type.

(2) A fibre extruded from a homogeneous mixture of two different polymers. Such fibres combine the characteristics of the two polymers into a single fibre. Bi-constituent fibres consisting fibrils of a polymer aligned parallel to the fibre length interspersed in a continuous matrix of another polymer and their structure, resembles the bilateral structure of wool. Clearly fibrillar-matrix ratio and the nature and relative dimension of the components can be altered to vary the physicochemical properties. Some of the important bi-constituent fibres are Monvelle (Nylon/ Spandex), Source (Polyester/Nylon), Chinon (Acrylonitrile/Casein), Mirafi 140 (Nylon / Olefin), Polychlal (Polyvinyl chloride/Polyvinyl alcohol), etc. New and improved types ofbi-component and bi-constituent fibres continue to find increasing application in knitting, hosiery and carpeting. See **Bi-component fibre**.

Bi-directional fabric: A fabric having reinforcing fibres in two directions, i.e. in the warp (machine) direction and filling (cross-machine) direction.

Bi-elastic: A fabric with two-dimensional elasticity in knitted/woven.

Bifilar: (1) Bi-component fibres/filaments manufactured by bifilar spinning; e.g. production of polyamide/polyester simultaneously, side-by-side without blending from one spinneret hole, accompanied by final adhesion to produce one double filament.

(2) In the sense of two thin threads (instead of one thicker one), e.g. as used in knitting/warp-knitting/warp knitting for the production of dimensionally stable, long lasting men's underwear (double-thread circular knits).

Bi-functional: A term used to represent a reactive dye which has two reactive groups in the dye molecule. See **Bifunctional reactive dye**.

Bi-functional reactive dye: A reactive dye that has more than one type of reactive group in the molecule. The reactive groups may be identical or reactive to different reactive properties, say two vinyl sulphone groups or one vinyl sulphone and one mono-chloro pyrimidine group, etc. These reactive dyes are designed to have the ability to react with the fibre in more than one way. This increases how much of the dye in the bath is actually fixed to the fibre, rather than being wasted through hydrolysis. Although the dye can react with the fibre in more than one way, the temperature used is typically around 60°C (140°F). These dyes may be preferred by industrial users because of the lower waste (less effluent treatment cost) and lower reactivity, which can mean easier process control.

Bight: The distance between the stitching line and the adjacent edge of the material. See also **Seam allowance**.

Bijar carpets: A very densely knotted broad-like stiff carpets from Persian town of the same name. Naturalistic design with floral motifs is typical of Bijar carpets. The grounds are of dark colour: Dark blue, cherry red, bottle green, but sometimes camel hair colour, while colours used for designs are very vivid.

BIL Crease resist process (built in lubrication): A special cross-linking process to preserve the natural mechanical properties of cotton by incorporating stearyl derivatives of 1, 3 dichloropropanol-2.

Bilateral: Having two sides.

Bilateral fibres: Two generic fibres or variants of the same generic fibre extruded in a side-by-side relationship. See **Bi-component fibres**.

Bilateral fibre structure: Refer to fibres where two different types of fibre structure joined together making one fibre. For e.g. in the cortical layer present in the structure of wool consisting of the para and ortho cortex, as well as the different polymer structure in the cross-section of cotton fibres. Silk which has not been degummed also reveals a bilateral structure.

Billiard cloth: Woollen cloth made from fine merino wool. Heavily milled with fibrous finish. Dyed green or red for billiard or card table tops. Plain or twill weave, the cloth is of the highest quality and must obviously be smooth and even, but must have body.

Billiard green: The deep-green of the baize on billiard/snooker tables.

Billinghames test: A test for distinguishing between abaca and sisal. Wash the sample with methylene chloride and dry. Boil the sample with 5% Nitric acid for 5–10min.Wash off the excess acid and immerse the sample in cold in 0.25n sodium hypochlorite solution for 10min. Remove the sample and dry. Abaca gives an orange colour, whereas the sisal and other leaf fibres will give only a yellow colour.

Bimli jute: See **Kenaf**.

BIN: Belgian Standard Association.

Binca or bold work cloth: A very distinctive embroidery fabric made in a range of colours. It is characterized by the fairly large square holes between the blocks of thread. Often used as beginners embroidery fabric for children.

Binche lace: A Flemish lace. A six-point star shaped ground net of snow-flake effect with a scroll pattern on it.

Binder: (1) An adhesive applied with a solvent or plastic (that can be softened) melted to bond fibres together in a web or to bind one web to another. Mainly used binder polymers are acrylic ester copolymers, and homopolymers, butadiene-acrylonitrile copolymers, styrene-butadiene copolymers, chloroprene polymers, vinyl chloride polymers, vinyl acetate polymers, vinylidene chloride polymers, natural latex, etc.

(2) A material, usually nearly colourless, that is typically used to attach a pigment to fabric. Binders are more-or-less “glue” to hold the pigment in place. Paints consist of pigments mixed with binders. Many binders used in textile paints are acrylic polymers.

(3) The binding or wrapping yarn used in the production of yarns on a hollow spindle spinning machine. The binder is usually filament, but may for certain applications be spun yarn.

Binder content: The weight of adhesive used to bond the fibres of a web together. Usually expressed as percent of fabric weight.

Binder fibres: (1) The weight of adhesive used to bond the fibres of a web together. Usually expressed as percent of fabric weight in the material.

(2) Binder fibres are used in the manufacture of composite textiles in non-woven. Synthetic fibres with thermoplastic properties or which are soluble or capable of swelling in specific solvents are used for this purpose. They are subdivided into the following categories: (1) Soluble binder fibres as polyvinyl alcohols or alginate fibres; (2) Melt-able binder fibres such as copolyamide, copolymer thermoplastic fibres with low melting point (160–190°C);(3) Adhesive binder fibres such as cellulosic fibres, etc.

Binder film: A film of synthetic resin polymers formed around the individual fibres in a textile fabric in pigment printing and in which the colour pigment is embedded.

Binder for nonwovens: See **Binder**, **Binder fibres**.

Binder prints on polyester: Pigments are printed on polyester using binder, but they give lower rubbing fatness as compared with cotton, since here the binder is surface abraded and drawn out from the fibre interior, whereas in case of cotton residual quantities for binder remains in the fibre cavities.

Binding (edging): Usually a broad tape used as a trimming, e.g. as a decorative border for under wear aprons, national costumes, etc.

Binding site: In pile yarn floor coverings: A place at which the pile yarn is, or can be bound to the backing fabric.

Binding thread (Stitching thread): Additional warp or weft threads used in fabric to join two or more layers of fabric together or to fasten long floats of yarn to the body of the cloth.

Bioactive: Term used to describe the function of biologically active substances, e.g. Biodegradation of surfactants and Biofouling. Enzymes are also bioactive.

Bioassay: An experimental technique for measuring quantitatively the strength of a biologically active chemical by its effect on a living organism. For example, the vitamin activity of certain substances can be measured using bacterial cultures. The increase in bacterial numbers is compared against that achieved with known standards for vitamins, yolk, kidney, liver, and yeast being good.

Biocatalysts: Enzymes.

Biochemical oxidation, biological oxidation: The oxidation of a chemical by microbial processes. Numerous examples exist including bacterial oxidation of organics, sulphur oxidising bacteria or bacteria that oxidise ferrous iron

salts to ferric iron salts, nitrification of ammonia to nitrate, etc. See **Aerobic biological oxidation, Anaerobic oxidation, Anoxic**.

Biochemical Oxygen Demand (B.O.D.): A standard test for estimating the degree of contamination of water supplies. The amount of oxygen taken from natural water by microorganisms that decompose organic waste matter in the water. It is therefore, a measure of the quantity of organic pollutants present. The biochemical oxygen demand is determined by measuring the amount of oxygen in a sample of water, storing the sample, and then making the measurement again five days later. It is expressed as the quantity of dissolved oxygen (in mg/l) required during stabilization of the decomposable organic matter by aerobic biochemical action.

Biodegradable: The ability of a substance to be broken down by bacteria, so that it can be returned to the environment without posing an environmental hazard.

Biodegradable organics in waste water: Composed principally of proteins, carbohydrates and fats, biodegradable organics are measured most commonly in terms of BOD (biochemical oxygen demand) and COD (chemical oxygen demand). If discharged untreated to the environment, their biological stabilization can lead to the depletion of natural oxygen resources and to the development of septic conditions.

Biodegradable textiles: Textiles as biodegraded as the final biological treatment in a chain of natural fibre polymer chemical (from raw product via textile fabric production to finishing), when enzymatic break-down process of a complex type takes place on the fibre polymers.

Biodegradation: Degradation of any material by the action of bacteria. Biodegradation is generally understood to be the sum of all processes which reduce the load or concentration of polluting substances in water courses. As soon as biodegradable pollutants enter a water course, the respiration rate increases through the reproduction of microorganisms which are universally available thereby reducing the load or concentration of pollutants. A succession of organisms is therefore built up. This heterotrophic activity is termed saprogenic (intensified decomposition of organic matter).A term commonly used in effluent treatment of textile rejects. It is important that any chemical, dye, auxiliaries, fibre, etc., should be biodegradable to conserve the environment.

Biodegradation of cellulose: The biodegradation of cellulose is caused by enzymes known as cellulases. Cellulases are produced by many microorganisms (bacteria and fungi). The most widely studied cellulases are of fungal origin, e.g., Trichoderma. The cellulose-digesting bacteria of

the rumen are a complex anaerobic community. The primary reaction in the enzymatic degradation of the cellulose is hydrolysis, and degradation is a function of the available surface area and crystallinity of the cellulose. Cotton fibre is a highly crystalline form of cellulose and the ability to degrade this form of cellulose is relatively rare among microbes, and due to the solid nature and insolubility of the substrate, is not very rapid. The cotton fibre, after ginning, is about 95% cellulose with the other 5% mainly wax, pectins, and proteins. These non-cellulosic nutrients are important to the maintenance of the complex microbial communities to which extensive cellulose degradation is typically ascribed, but in cotton fibre, these non-cellulosic nutrients are in too low amounts to be of much significance.

Biodegradation of surfactants: Many surfactants used in textile industry is not biodegradable by means of bacterial oxidation involving the action of aerobic and anaerobic bacteria. Soaps, fatty alcohol sulphonates, alkylbenzene sulphonates with unbranched carbon chains, alkyl poly (oxyethylene) sulphates, fatty acid condensation products and saccharose fatty acid esters are readily biodegradable. In general, surfactants with straight C-chains (= "soft", formula I) are biodegradable, whilst surfactants with branched C-chains (= "hard", formula II) have very poor biodegradability such as, e.g. alkylaryl sulphonates of the tetrameric propylene benzene sulphonate type.

Biodegradation of textile chemicals: Biodegradability of many chemicals used in the textile industry is poor. For example certain dyes, resin finishing chemicals based on urea-formaldehyde, melamine and glyoxal resins, non-ionis polyethylene emulsions and polyvinyl alcohol. Chemicals have to be tested for biodegradability; and if not biodegradable, should be completely avoided for textile use.

Bio-filter activated sludge process: An aerobic biological treatment system that consists of an aerobic bio-filter followed by an activated sludge process (i.e. an aeration tank and a sedimentation tank). The sludge recycle from the sedimentation tank is returned either to the aeration tank or bio-filter.

Bio-finishing: See **Bio-polishing**.

Biological activated carbon: (1) Granular activated carbon on which microbes grow. The microbes enhance the treatment of the water or waste-water or gas. See **Activated carbon filter**. (2) A combination of ozonation and granular activated carbon used to remove dissolved organic material from water.

Biological oxygen demand: See **Biochemical oxygen demand**.

Biological waste-water treatment: A stage in waste-water treatment where the natural self-purification processes is used. In order to accelerate aerobic

degradation, however, the water is enriched with oxygen artificially. The most frequently used treatments are the percolating filter and the activated sludge process.

Biologically active finishes: Natural fibres and regenerated natural fibres are subject to attack by various biological agents including bacteria, fungi, and insects. While synthetic fibres are not normally attacked by these biological agents, substrates of these fibres can act as a support for growth of bacteria and fungi on the fibre surface. Several metallic and organometallic salts, phenolic and anilide derivatives, and quaternary amine salts can inhibit growth of bacteria and fungi on fibres. Cellulosic most often require such treatment to prevent mildew and rot from feeding on and attacking the fibre substrate. These are called biologically active finishes.

Biomass: The mass of a biological population, usually expressed in terms of dry weight. The term is used to describe the mass of biological solids growing in a waste-water treatment process.

Biomass separator: A sedimentation tank that follows after biological treatment of waste-water and is used to settle-out the biomass that has formed in the biological reactor from the treated effluent. In a traditional treatment plant for domestic waste-water, the separator is known as secondary sedimentation tanks.

Bio-monitoring cloth: In other words, this refers to clothing with embedded devices that can monitor vital signs, electrically converting the physical values measured from the body and expressing the resulting biological phenomena into electric signals. As such, it makes health management and remote treatment possible.

Bio-polishing: Cellulase enzyme action on cotton removes protruding fibres from the surface of dyed textile products to enhance colour. This operation is referred to as bio-polishing, and cellulose preparations have been incorporated in laundry detergents to eliminate or reduce surface fuzziness on cotton goods during the wash cycle. Enzymes are used also for bio-stoning of dyed garments, as done in the garment dyeing industry. Pumice stones have been used in recent years to soften garments and to remove colour and produce unique washed-down appearances through abrasive action. However, such processes are not only environmentally unsound because of the disposal problem of ground-down stone particles after processing, but the stones are also very damaging to the processing equipment as well. The use of enzymes eliminates or substantially reduces the need for treatment with pumice stones. The effectiveness of any of these operations for the removal of the material from the substrate is dependent on the type of mechanical action during

processing. This includes the abrasive action of fabric-to-fabric contact or the cascading effect of aqueous solution on the cellulosic substrate. Bio-polishing can remove the hairiness which is not even burnt off during the singeing operation.

Bio-polymer: A naturally occurring polymer such as cellulose.

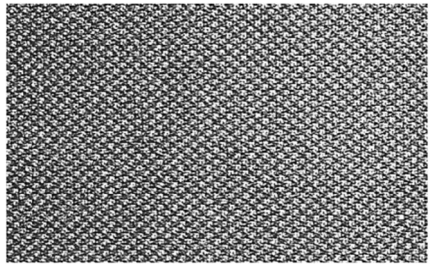
Bio-scrubber: A method of biological odour control in which the malodorous air is passed up through a filter containing plastic media in a conjunction with a down flow of liquid effluent. The biofilm grows on the solid media. The biofilm adsorbs and oxidises some gaseous pollutants as the contaminated air passes through the scrubber. The effluent supplies the nutrients for microbial growth. It is also known as a bio-filter. It has been successfully used for hydrogen sulphide removal.

Biotech cotton: Biotech cottons deliver high-tech options to farmers and consumers without compromising environmental quality. Since the introduction of Bacillus thuringiensis (Bt) biotech cotton in 1996, cotton has been one of the lead crops to be genetically engineered, and biotech cotton has been one of the most rapidly adopted technologies ever. The current varieties of commercial importance address crop management or agronomic traits that assist with pest management (insect resistant) or weed control (herbicide tolerance). Nine countries representing over 59% of world cotton area allow biotech cotton to be grown: Argentina, Australia, China (Mainland), Colombia, India, Indonesia, Mexico, South Africa, and United States. Other countries (e.g., Pakistan, Brazil, Burkina Faso, Egypt, and the Philippines) are considering approving the cultivation of biotech cotton. In 2003–2004, about 21% of the world's cotton acreage and about 30% of the cotton produced in the world was biotech cotton; in 2004–2005, about 35% of world's cotton production was biotech cotton; and within five years, world biotech cotton production could be close to 50%. The initial biotech efforts have been centred on insect resistance and herbicide tolerance. Insect resistance has been conferred through the incorporation of genes from Bt that produce Bt *d*-endotoxin, a naturally occurring insect poison for bollworms and budworms. While insect resistance and herbicide tolerance are the only traits currently available in biotech cottons, a broad range of other traits are under development using modern biotechnology. These may impact the agronomic performance, stress tolerance, fibre quality, and yield potential directly. However in 2005, few of these traits are close to commercialization. As soon as new developments in bioengineered cotton for insect resistance, herbicide tolerance, stress tolerance, yield potential, improved fibre quality, etc., are available, they will be incorporated into conventional cotton varieties.

Biphenyl: A chemical used in textile dyeing e.g dyeing of Aniline Black. It is toxic to water dwelling organisms and can undergo bioaccumulation.

Bird's-egg green: A pale-green or bluish-green. See **Oxanthine**.

Birds eye: (1) A generic term describing a cloth woven on a dobby loom, with a geometric pattern having a centre dot resembling a bird's eye. Originally, bird's eye was made of cotton and used as a diaper cloth because of its absorbent qualities, but now the weave is made from a variety of fibres or fibre blends for many different end uses.



(2) A speckled effect on the back of a knit fabric resulting from the use of different colours on the face design.

(3) Also called peacock eye. Pattern is produced by regular bird's eye type weave effects. Worsted or worsted ply yarns, as far as possible of pure wool or 70–90% wool content, are used exclusively, There are several types of weaves, but an eight-shaft crepe weave is predominantly used with the yarn sequence in warp and weft of 2 dark 2 light.

Bird's eye linen: Usually made of cotton, the cloth is made with small diamond shaped weaves. Construction is about 64 × 68 with 28s warp and loosely twisted 15s filling. Made in the ranges of 18 in to 30 in width, depending on the end use. Bird's eye linen is usually bleached, but sometimes dyed in pastel shades. It is also called dobby woven diaper cloth.

Bird's eye (in knotted fabrics): An unintentional tuck stitch.

Bird's-eye weave: Floating filling yarns over warp threads in a set formation which produces this diamond shaped design. The pattern has a centre dot which resembles a bird's eye.

Bird's nest: Mat-knitted wool mat with combed-out napped surface.

Biredshend: Persian knotted carpet of very close texture, often made with motifs of palm leaves and shawl designs.

Birefingence of fibre: A term used as a measure of the orientation of the macromolecules within the fibre. The algebraic difference of the refractive

index of the fibre for a plane polarized light vibrating parallel to the longitudinal axis of the fibre and the index of refraction for light vibrating perpendicular to the long axis. Dn = (Rip-RIr) Where Dn = the birefringence, Rip = the refractive index measured parallel to the fibre axis, RIr = the refractive index of the fibre measured perpendicular to the fibre axis.

Birefringence: An optical term meaning double refraction, and used in examination of manufactured fibres to measure the degree of molecular orientation effected by stretching or drawing.

Biretta: Flat cap decorated with feathers and cords.

Biretz: Double-faced woollen fabric, having ribs on one side and cashmere twilled on the reverse.

Bisage: Twice-dyed fabric.

Biscuit: The light-brown colour of a biscuit; hence 'biscuit-coloured'. From the Italian *biscotto*, 'twice-cooked'. First recorded as a colour in 1884. Also describing pottery after first being fired and prior to its decoration.

Biscuit; **Biscuit package**: A cylindrical package of yarn wound on a take-up winder as used in the extrusion of synthetic filament yarns, where the axial length of the package is small in comparison with its diameter. Biscuit may be wound on each take-up mandrel.

BISFA: Bureau International pour la Standardization de la Rayonneet de Fibres Synthetiques (International Bureau for the Standardisation of Man-made Fibres, Basle).

Bisette: (1) French term for an embroidered braid; (2) Narrow and coarse white linen pillow lace made by the peasants in Seine et Oise, France; originated in the 17th century.

BISFA Method: A method to assess crimp contraction (or crimp elasticity). This property is essentially assessed on false-twist yarns and is defined as "the contraction of a textured yarn due to crimp development, expressed as percentage rate of the stretched out (not crimped) yarn length". Method: (1) Hanks with 2500 dtex global linear mass (fil.count ≤ 200 dtex) with 2 cN/tex winding tensions. (2) Crimp development in oven-heated air at 120°C for 30 min (PA, PES) and cooling in standard room conditions for 12 hours. (3) 1st measurement under 2,0 cN/tex preliminary tension for 10 min (L_0). 2nd measurement under 0,01 cN/tex preliminary tension for 10 min (L_1) Calculation: $E = (L0 - L_1)/ L_0 . 100$

Bishop's lawn: A very light, fine, plain woven cotton dress goods, given a bluish starch finish. Originated in England, where it is made usually 32 inches wide, weighing five or six ounces a yard; used by the clergy.

Bismarck: A leather-brown colour.

Bismarck Brown Fr Extra: A cationic dye used for the differentiation of various textile fibres which have been subjected to different treatments, like methylene blue.

Bisonne: A French woollen fabric, made of natural grey wool used for lining garments.

Bisou: See **Bassine**.

Bisque: A pale pinkish- or yellowish-brown colour. First recorded as a colour term in 1922.

Bissonata: Coarse woollen cloth, dyed black or brown, made in France for clerical garments, in olden days

Bistre: A dark-brown colour; the brown pigment or wash used in pen and ink drawings made from boiling the soot of wood, particularly, beech wood and used by Renaissance painters. Also 'bistre brown'. Superseded by **sepia**.

Bisu; **Husks**: Silk waste remaining on cocoons at the bottom of the basin after reeling.

Bitlis: Oriental wool carpet made in Bitlis, Asiatic Turkey (Anatolia).

Bitre: Description of linen of Brabant.

Bitumen: Black **asphaltum**; an unstable brown pigment often the cause of cracking in paintings.

Bivalent: Possessing a valence of two.

Bivouac: Woollen dress goods, made with nub yarn in mixture effect.

Bivoltine: Cocoons built by silk worm race with two generations (life cycle) in a year.

Black: A very common colour for the dyer or printer, but problematic. Technically, black colour is one where all the incident light is reflected. In many dye families, such as reactive dyes, there is no such thing as a "pure" black dye: blacks are made by using mixtures of other colours, often starting with a large proportion of a navy blue. To achieve a good dark black, it typically takes much more dye than for strong shades of other colours. It is not unusual to see recommendations between 6% and 10% owg because blacks are usually mixtures, discharge of black may yield unexpected results. Coppery colours are not uncommon. Reducing agent discharge may produce different results from oxidizing agent discharge. Some dye vendors offer black dyes that are specially formulated to discharge to almost white. Sulfur dyes are extensively used commercially for black cotton fabrics, but recently there was a ban on

sulphur colours in certain countries. Aniline black, not widely used now is probably the best black which can be produced on cotton.

Black board cloth: See **Broad cloth**.

Black faced: A medium long and usually kempy lustrous wool, yielded by the sheep of the same name in Scotland; used for homespun, carpets.

Black felt: The classification of felt manufactures in various shades of black.

Black fibre: Sometimes horse hair is substituted by this dark, smooth, glossy fibre obtained from the leaves of a species of caryota palm in Sri Lanka. Black fibre is the commercial name of this fibre.

Black mordant: (1) A term used for stock preparation of aniline salt used in the preparation of the impregnation of cotton fabric for the production of oxidation black. See **Black**.

(2) A mordant for logwood black pyrolignite of iron and iron (III) sulphate.

Black panel thermometer: A temperature measuring device, the sensing unit of which is coated with black colour and designed to absorb most of the radiant energy encountered in light fastness testing. It is the maximum temperature which can reach during that particular testing procedure.

Black seed: Commercial term for various American cottons with a smooth black seed.

Black standard thermometer: A temperature measuring device, the sensing unit of which is coated with a black material designed to absorb most of the radiant energy encountered in light-fastness testing and is thermally insulated by means of a plastic plate. See **Black panel Thermometer**.

Black superfine: Commercial term for the finest grade of black woollen suiting made in West of England in olden days; fulled napped, shorn and finished with a soft, lustrous face; used for dress suits.

Black thread: In flax spinning yarn spoiled by oil.

Black watch: A very dark tartan worn by the 42nd Royal Highland Regiment, composed as follows: Very dark green bar, split in the middle by a group of narrow black, navy and black lines; black stripe, half the width of the green bar; narrow blue stripe, narrow black stripe, narrow blue stripe, narrow black stripe; dark-blue stripe, half of the green in width; repeat group described between the two in reversed order.

Black (in colour chemistry): In theory, the complete absorption of incident light; the absence of any reflection. In practice, any colour that is close to this ideal in a relative viewing situation, i.e. a colour of very low saturation and very low luminance.

Blackberry: The colour of the dark-purple fruit of the *Rubus* family.

Blackcurrant: The colour of the round black berry of the *saxifrage* family.

Blackjack: Staple trade term for cotton staple containing large pieces of leaves.

Blacklight: "Longwave" ultraviolet light; wavelength typically about 365 nano-meters. Black-light lamps made with a fluorescent tube that appears very dark purple can often be found reasonably inexpensively at novelty shops and even at stationery stores where they are sold for detecting counterfeit money. Black-light lamps are useful for detecting optical brighteners in fabrics.

Black-out cloth: Different types of woven fabric, mostly highly calendared, sometimes raised on one-side dyed to a dark shade (also coated as black-out curtain 9carbon coating).

Black-out curtains: Roller blinds made from fabric composed of synthetic fibres to which one coat of carbon fabric carbon black is applied in between two polymer coatings producing a virtually total lightproof material.

Blade method of crimping: A texturizing process. The textured yarn produced with this process bore originally the mark Agilon (producer: Milliken), but at present the process is no longer in use, owing to the poor properties (low crimp stability) of the yarn.

Blade squeeze: The classical shape of squeeze in contrast to roller squeeze.

Blanc: A term used in the French dry-goods trade for everything which is bleached, irrespective of material.

Blanc de chine: Unpainted white or cream porcelain, originally made in China since the 17th century.

Blancards: A linen goods made from half-bleached flax yarn in Rouen, France. Not very common now.

Blancmange-pink: A pale pink.

Blandford lace: Fine English pillow lace of the 18th Century; made in Blandford. Now obsolete.

Blanguin: A Cuban plain woven, bleached cotton sheeting.

Blank bleach: The operation of a bleaching plant with all the chemicals but no textile material in order to check the equipment, controls, etc.

Blank dyeing: Blank dyeing is usually done to find out the influence of the actual dyeing conditions on the material in the absence of the dye which could otherwise mask any yellowing or other non-dye related problems/effects. Normally, a full dyeing cycle is done with the specific material while using all other auxiliary chemicals, etc., with omission of dye from usual recipe.

Blank print: A print produced on a textile substrate with a paste containing all the ingredients except the dye, to study the influence of the printing conditions where the presence of dye will influence the result.

Blank screen: A non-engraved screen, i.e. without coating or the design engraved on it.

Blank vat: An alkaline solution of sodium hydrosulphite as used in vat dyeing, but without the dye. This is used in stripping of dyes, stripping and levelling of vat dyes, developing of vat dyeing produced by pigment-padding method or other two-phase methods.

Blanket: (1) (i) A thick and heavily napped and twilled woollen fabric, often with an admixture of cotton; used for bed covers; horse blankets are very heavy and felted;(ii) Name for the 2–2 twill and also an eight-harness satin weave; (iii) Weaving term indicating a short length of a fabric showing one or a number of ranges of patterns made in a variety of colours.

(2) The endless strong coated fabric sheet running guided by guide rolls which is flat when it comes to the top side of the printing area, above which the flat or rotary screens are fixed and the actual printing takes place. After printing is over, the fabric goes to the drier and the blanket goes below the printing table; it is washed and dried and if necessary, gum is applied and then it comes up at the feeding end of the printing table. See **Blanket washing**.

Blanket cloth: May have been named after Thomas Banquette, a Flemish weaver living in England in the 14th century and was the first to use this material for sleeping to keep warm; but now it means any thick cloth with a heavy nap, suitable for rugs, dressing-gowns, blankets, casual coats, shawls and stoles. Warmest made in wool or worsted, but now also made from other fibres or mixtures. Not hard-wearing if made into clothing.

Blanket mark: See **Corrugation mark**, **Sanforizing mark**.

Blanket plaid: A large and vividly coloured plaid design, such as those often found on blankets

Blanket seam: A printing fault in roller printing, characterized by a light-coloured width-wise stitching mark, appearing on face side of the printed fabric, caused by the seam in the rubberized blanket beneath.

Blanket stitch and Button-hole stitch: Embroidery stitch. Method: These stitches are worked in the same way – the difference being that in button-hole stitch, the stitches are close together. Bring the thread out on the lower line, insert the needle in position in the upper line, taking a straight downward stitch with the thread under the needle point. Pull up the stitch to form a loop and repeat. This stitch may also be worked on even-weave fabric.

Blanket washer: A special compact washing machine used in roller/flat bed/ rotary printing machine for continuous washing of the printing blanket during printing operation.

Blanket (bed): See **Blanket**.

Blankets: There are many types of blankets material. It may be made of wool, rayon, cotton, dyenel or a combination of these. The principal use of blankets is for bed coverings, robes and steamer rugs. For single bed, material weighing 3 lb, with 66 × 84 in is found satisfactory. The double beds 72 × 84 with 3½ lb are found useful. The material which weighs less than 12 oz. per sq. yard is not found satisfactory as blankets. Cotton blankets are made usually with relatively fine warp and coarse filling. The filling is given a long, dense nap on both sides of the fabric. Warmness of a blanket depends on the thickness of the fabric and not on fibre content or weight. Cotton blankets lack the liveliness of wool. Blankets sheet are quite similar in construction to the heavier type flannelette. They are woven as wide as sheets and are used sometimes as top coverings. It is usually woven in plain weave, but sometimes 2/2 twill or the filling reversible weave is used. A medium weight cotton blanket will have a construction of 40 × 30 with 20s warp and 5s filling. Usually dyed in plain colours or in stripes and plaid patterns the blankets often comes with fringes.

Blanket stitch: See **Loop stitch**.

Blarney: (1) Fine Irish tweed suiting; (2) Irish woollen knitting yarn, heavier and harder than the Connaught.

Blassas: Inferior Spanish raw wool.

Blatta: Purple; also the name for silk dyed purple.

Blaze: See **Silk wadding**.

Blaze (French): The silk spun by the silkworm that serves as a scaffold to support the cocoon; also called floss silk or spelaia (Italian).

Blazer: Sports jacket. Originally a fairly light-weight jacket often striped or coloured of a sports club or school, etc., with decorative buttons and a badge bearing a coat of arms.

Blazer cloth: A type of flannel or Melton used for blazers. Usually wool, but can be mixtures. Traditionally made in stripes, now it is also made in plain colours. The right side is usually slightly napped.

Blazing: Flaming, shining. Also used as an adjective of colour especially as regards such as yellow, red and orange.

Bleach activators: Acetyl compounds which has the capacity to form peracetic acid with H_2O_2 donors in the liquor as an intermediate stage of the bleaching

reaction are bleaching activators. The reaction is virtually independent on the washing and reaction temperature and proceeds preferentially at pH 9–12, at significantly lower temperature than usual. Bleaching systems are developed with sodium perborate and bleach activators such as tetra acetate glycol uril (TAGU), tetra acetyl diamine types, etc., to make high duty detergents used especially in laundering.

Bleach liquor: Sodium hypochlorite.

Bleach, Chlorine: A solution of sodium hypochlorite in water; an oxidizing bleach.

Household chlorine bleach, about 5% sodium hypochlorite, suitably diluted, can be used for whitening cellulose fabrics prior to dyeing. It is also used in some art discharge processes (this author knows of no industrial use of chlorine bleach for discharge). Chlorine bleach can damage cellulose fibres, but is safe if strength and exposure time are limited, and the bath pH is maintained at about 9.5. Goods must be thoroughly scoured prior to chlorine bleaching; otherwise impurities may form compounds that are yellow and very difficult to remove. An antichlor should usually be used to assure complete neutralization of the bleach. Do not mix chlorine bleach with acids – chlorine gas will be liberated. Do not use chlorine bleach on wool, silk or spandex - fibre damage will result. Industrially, chlorine dioxide is sometimes used for bleaching. Although it is less likely to cause cellulose fibre damage, it is not suitable for home use because the bath is very corrosive to metals, and there is significant risk of chlorine gas production. In general, chlorine bleaching is obsolescent for industrial textile preparation.

Bleach (in care of textiles): A product for brightening and aiding the removal of soils and stains from textile materials by oxidation that is inclusive of both chlorine and non-chlorine products.

Bleach (in home laundering): Products that will clean, whiten, brighten and aid the removal of soils and stains from textile materials by oxidation that is inclusive of chlorine and non-chlorine products.

Bleach (in textiles): An oxidizing or reducing agent used to partly or completely destroy natural or extraneous colouring matter in a textile, thereby leaving the textile lighter orwhiter

Bleach (oxidising): A bleach based on an oxidizing agent, such as hydrogen peroxide or sodium hypochlorite. Most general-purpose household bleaches belong to this class.

Bleach (oxygen): Bleach based on hydrogen peroxide or a chemical derivative of hydrogen peroxide. Oxygen bleaches typically are less damaging to fibres

than chlorine-based bleaches. Most "colour safe" bleaches are of this type. Dry powder bleaches and detergents of this class usually use a "peroxygen" compound such as sodium perborate, sodium percarbonate or potassium monopersulphate.

Bleach, Reducing (reductive): Bleach or decolorizing compound that is based on a reducing agent. This type of bleach is typically used for discharge or stripping. Usually they are not harmful to fibres, though some processes require temperature or pH that may damage fibres. Wool is often bleached with reducing bleaches. Thiourea dioxide and sodium hydrosulphite are two compounds that find use as reductive bleaches.

Bleachability: The extent to which a particular textile can be bleached using a specific bleaching agent. Nowadays, the Whiteness Index is used for comparing the bleach obtained.

Bleached denim: Often garment processed, made up jeans washed and bleached. A precisely calculated bleaching agent is added to the wash liquor in the pre-wash which bleaches out some indigo. The garments are finally rinsed and softened as usual for the required handle, etc.

Bleaching: Any of several processes to lighten/remove the tints contained in the grey fibres and hence in the grey fabrics or yarn due to growth (in case of natural fibres) or production (in case of man-made fibres) by means of suitable bleaching agents to obtain clear whites for finished fabric or in preparation for dyeing and finishing. Commonly used bleaching agents are hydrogen peroxide or related chemicals, sodium hypochlorite or related chemicals, sodium chlorite, sodium chlorite, etc. See **Bleaching, oxidative; Bleaching, reductive**.

Bleaching agent (general): A chemical used for removing dyes or natural colouring matter on a textile material leaving white or partially white.

Bleaching agent (hydrogen peroxide): Hydrogen peroxide is used as an oxidative bleaching agent for bleaching cellulosic materials, especially cotton. This bleaching agent is more important since the other chemical, sodium hypochlorite, which is cost effective is having problem with the effluent when used. Hydrogen peroxide bleaching is carried out in the alkaline range, as per the substrate to be bleached.

Bleaching agent (sodium hypochlorite): A cost-effective bleaching agent for cellulosic material, but its AOX value as a measure of organic halogen compounds exceeds the permitted effluent pollution.

Bleaching agent (sodium chlorite): This is a very gentle bleaching agent for cotton in particular in long, liquor does not chemically damage the cellulose

structure even with moderate dosing or longer treatment time. Chlorite bleach is done in acid pH of about 3.7–4.0, which enables to bleach alkali sensitive materials like polyacrylonitrile, regenerated cellulose and other fibres like cotton, viscose, acetate, etc., also.

Bleaching and catalytic damage: In peroxide bleaching of cellulosic material, the presence of metals in traces, especially iron, manganese, calcium, etc., can cause the spontaneous release of oxygen which can make local destruction of cellulosic material (pin holes) which is called catalytic damage. These meta particles can come from water, steam, alkali, stabilizer or auxiliaries. The remedy can be pre-treatment of the fabric with oxalic acid or metal chelating auxiliaries and then bleaching or bleaching along with strong chelating agents.

Bleaching auxiliaries: Products designed to improve the reliability of bleaching, accelerate the bleaching are bleaching auxiliaries. They are mainly wetting agents, stabilizers, activators, chelating agents and corrosion inhibitors are general bleaching auxiliaries.

Bleaching (degree of): Degree of whiteness obtained in a bleaching process. Whiteness index is the measure of whiteness.

Bleaching earths: They are colloidal magnesium aluminium silicate with varying iron content, used as filtering auxiliaries and decolourising dark mineral oils, fatty oils, and fat. Today there are other methods and this is not very significant.

Bleaching fastness: Colour fastness to bleaching agents, like sodium hypochlorite, peroxide, sodium chlorite, etc.

Bleaching soda: (1) Sodium dithionate or sodium hydrosulphite ; (2) A mixture of sodium carbonate and sodium silicate for water softening which is capable of binding traces of iron. Used in laundries, etc.

Bleaching stabilizers: The efficiency and effectiveness of hydrogen peroxide bleaching mainly depends on the controlled release of oxygen. If oxygen is released too fast, it can cause damage, too low a release will make the process longer and impractical. Hence stabilizers like sodium silicate (which is the best).Silicate washing off from the substrate is not that easy and hence other stabilizers like polyorganosiloxanes, sodium borate, magnesium silicate, etc., are also used.

Bleak: Pale.

Bleb: A blister or bubble on the face of a spinning jet, interrupting the extrusion of the filament from the spinneret-hole involved.

Bleb rate: The frequency of bleb formation in an extrusion operation.

Blee: Archaic term for a hue or colour.

Bleeder styles: Prints with indistinct outlines. There will be two components in the print paste of these type of prints where one component ensures the engraved area of the prints while the other component spreads beyond the print area into the unprinted area so that a contrasting colours at the edges of the printed motifs. A cotton material prepared with a naphthol if printed with a mixture of diazo-fast colour bases or salts in combination with reactive dyes will give such an effect.

Bleeding: Loss of colorant from a coloured material, say fabric or yarn in contact with liquor, (water, a solvent, or a similar liquid medium) leading to a colouration of the liquor, as a result of improper dyeing or the use of dyes of poor quality. Fabrics that bleed can cause staining of white or light shade fabrics in contact with them while wet. Usually occurs in cases where dark colours are dyed or printed with poor fastness.

Bleeding: A problem occurred during dyeing/printing where dyes with lower fastness properties are used for dark shades. When washed or undergoing any other wet treatments, the colour is bled into the liquor giving a lighter shade and in case of prints with additional problem of staining the white/dyed areas. The bleeding can also happen if proper fixation is not done.

Blench (to): To make something white or pale; to become white or pale.

Blend: (1) A yarn obtained when two or more staple fibres are combined in a textile process for producing spun yarns (e.g., at opening, carding, or drawing).

(2) A fabric that contains a blended yarn (of the same fibre content) in the warp and weft.

Blended yarn: See **Yarn (blended)**.

Blending: Process of mixing various fibres together, producing mixtures in colours or qualities. The different fibres are placed in thin layers on top of each other, taking care that no particular fibre is given prominence. The length of the fibre is a very important matter and short fibres are usually best adapted for blending. Bley Irish term for unbleached beetled linen.

Blending machine: A group of devices that are synchronized to proportion definite amounts of various grades of cotton which are to be blended together.

Blicourt: Fine French serge made in narrow widths of fine wool; used for lining garments; obsolete.

Blind chintz: Plain woven printed and calendared cottons, made in various colours and designs, mainly in stripes, and resembling Venetian blinds.

Blind fly (in garments): A material covered opening to conceal a fastening, e.g., buttons, zip, etc. A blind fly is fastened instead of left open along the finished edge.

Blind hem stitch: A complex machine stitch pattern consisting of small groups of straight or narrow zig-zag stitches separated by a side zig-zag stitch unit at consistent intervals.

Blind stitch: A stitch which does not go right through the material and hence mainly seen only one side.

Blind ticking: Made in combination of linen and cotton blind ticking is a stout twill material in any colour and stripes.

Blind twill: Trade name in England for twill showing only indistinctly.

Blinding: A marked undesirable loss of lustre of fibres after wet-processing.

Bliss tweed: Fine English woollen, similar to whipcord; used for liveries, etc.

Blister Cloth: Usually a double fabric, woven to produce blister effects.

Blister crepe': See **Cloque'**.

Blister effect: Novelty silk dress goods with Jacquard figures on crepe foundation; the crepe shrinks in the finish, producing blisters in the figures.

Blister, in bonded, fused or laminated fabric: A bulge, swelling, or similar surface condition on either face of the fabric or the backing fabric characterized by the fabric being raised from the plane of the underlying component over a limited area in bonded, fused or laminated to give a puffy appearance, mostly due to air entrapment.

Blitz: A light to medium weight worsted fabric with a filament warp and spun weft. Often has a very fine cross-wise rib. Common blends are acetate/rayon and polyester/rayon.

Block: (1) A piece of hardwood, smooth faced used for setting work during pressing.

(2) (in experimenting) A group of units that is relatively homogeneous within itself, but may differ from other group.

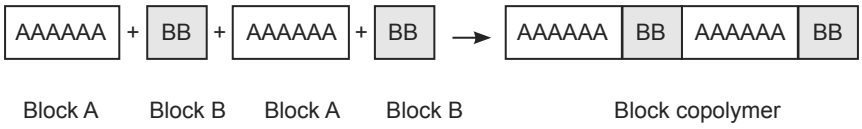
(3) To align warp and weft yarns at right angles, by some form of manipulation.

(4) A wooden block with designs carved on it, used in block printing. See **Block printing**.

Block (in sewing): It refers to the pieces of fabric that are sewn together to form one design element.

Block chopping: In garment, two basic approaches are used in cutting the stack of fabric into pieces of suitable size and shape to be sewn into finished products – Pattern chopping and Block chopping. *Block chopping* is a kind of rough cut that produces pieces close to the final shape, but which require some trimming cuts to bring them to the exact shape needed.

Block-co-polymer: The repeating unit consists of segments or blocks of similar monomerstied together along the macro-molecular chain.



Block cutting: The manufacturing process to produce the block for hand printing. Normally, special woods are used. Pattern production by wood-working in accordance with pre-print blocks with fine contours by driving in pins and metal-sheet strips. The latter are detailed in a lime wood block by means of red hot punches and babbitting with white metal alloy which serves as a printing knife when nailed on. Pins are sometimes driven into four corners to help in the setting of different colours in a design.

Block pattern: A basic shape upon which design details can be developed.

Block polymers: These high polymers are formed from chains of different copolymers whereby, individual units are joined together in relatively long alternating sequences.

Block printing: The oldest method of printing. Blocks made of wood or metal are engraved with designs. Blocks are made where the patterns are formed like in a stamp pad, which used for printing. Each block prints only one colour. The blocks are dipped in dye solution. Only the raised portion in the blocks picks up the dye and is then pressed on the fabric, forcing the dye to be printed on the surface. Different blocks can be used for making a large motif or same blocks can be used repeatedly to give all-over design. Not used extensively, but still used in small scales. See also **Printing**.

Blocker: A frame for drying wool. A fine picture of one can be found at the cyber fibre site. This is an open frame that rests on two supports with a handle on one side. You wind the damp yarn under even tension across the frame – not trying to line anything up. Rather like winding a bobbin for weaving. After the yarn dries, you can usually slide the whole skein off of one end.

Blocking: The measurement of the development of surface tack and thermal softening point of the material.

Blocking effect in the polyamide dyeing: Mutual displacement of individual acid dyes in the dyeing of polyamide materials within the range pH 3–6. The effect is dependent on dye constitution, dye concentration, fibre saturation value and the dyeing auxiliaries used.

Blocking filters: Used in spectrophotometers for colour measurement of fluorescent white samples. The excitation of the brightening agent can be removed to a large extent with a variable U. V. filter and on the other hand with blocking filters for visible light or with a U. V. source, the values for a brightening agent alone are obtained.

Blocking out: The action of cutting many layers of material into manageable blocks which may incorporate one or more part of the garments.

Blocks for printing: For hand block-printing, blocks are made from fairly hard woods like ash, box, lime, sycamore, holly and sometimes pear wood. To facilitate the registration in the hand block-printing, brass pins are driven in at the corners of the block to indicate the position of the next repeat. See **Blocks, Block printing, Block cutting**.

Blodbende: Medieval English name for narrow silk ribbon, worn tied around the arm after bleeding.

Blond quilling: Resembles bobbin quilling, but it is made of silk, is highly sized and finished; used for frills, ruffles.

Blonde lace: Blondes bobbin or needle-point laces made originally of natural-yellow silk in the l8th Century, later also of black or coloured silk. Originally called blondes ecrus or nankings. Blondes de fantaisie had machine-made silk net ground with the design darned into. Blondes en persil with small parsley leaves strewn over the ground. Blondes des applications have bobbin or needle-point sprigs appliquéd over machine made ground. Fausse blondes are silk tulles embellished with floss silk in various stitches. A very expensive silk lace with floral designs but with boldly defined holes in the flower heads.

Blonde de Fil: Sometimes applied to mignonette lace.

Blondes en Persil: See **Blondes**.

Blood: Denotes the fineness of the wool as compared with pure merino, which is called full blood.

Blood-dark: A dark-red.

Blood-red: A dark-red colour; a rich bluish-red.

Bloom: (1) The appearance of brightness of a dyed fabric when the fabric is viewed across the top while held at eye level.

(2) In deep dyeing, the fullness or toning with a red, yellow, or blue cast, e.g., bloomy black.

(3) The colour of foam in a vat dyeing bath which in contrast to the generally quite different colour of the vatted dye appears closer to the finished dyeing (oxidised dye).

(4) The glossy finish imparted to certain woollen fabrics in the calendaring.

Blooming: The glossy finish imparted to certain woollen fabrics in the calendaring.

Blossom: A soft pink.

Blotch: (1) See **Finishing spot**.

(2) A relatively large area of uniform colour in a printed design.

Blotch (in fabric defects): An off-coloured area of any shape, caused by grease or oil.

Blotch design: A single or multi-colour printed design in which upto approximately 80–90% of the fabric is printed in one colour.

Blotch print: In direct printing, a printed design of high coverage. Also used to substitute dyed grounds for discharge print in cases where no suitable discharge dyes are available or where technical problems are encountered in coloured discharge printing. The degree of coverage of the blotch can be low, medium or high.

Blotch printing: (1) In resist printing, different colours of the design are printed and the block printing is done to cover the full design. Wherever the colour is resisted, the blotch colour won't be fixed and on the remaining place it will be fixed; (2) In normal direct printing also, the blotch printing provides a background to a design which, unlike the white grounds in normal direct printing, or the plain coloured grounds in discharge printing, consists of a distinct pattern effect. It is produced with a special printing roller either simultaneously, before or after production of the main design, e.g. for imitation weave effects, fine dots, lines, etc. It may be visible over the entire surface of the printed fabric or limited to the areas falling over other colours by resist or discharge printing.

Blotch printing machine: A roller printing machine set up to print the entire surface of a fabric with print paste or a thickened chemical solution by means of a completely engraved blotch roller (cover roller, 1000 point roller). In case of rotary machines, the same effect is done by using an unengraved rotary screen or blank screen. Nowadays, special screens are made by few manufactures for printing Blotch.

Blotch roller: See **Blotch printing machine**. Cover roller.

Blouson (French): A short jacket or top having the shape of a blouse reaching to the waist, with either a buttoned or zip front and ample sleeves. The sleeve endings are finished with elastic material.

Blow down (of boilers): A cleaning procedure for the removal of solid substances which have settled in the water reservoir of a boiler, used for steam raising purposes. The procedure is often carried out with an automatic valve operating at working pressure.

Blow ratio: See **Foam applicator**.

Blowing: The process of blowing steam through a fabric which is wound on perforated beam or roller.

Blowing room: See **Blow-room**.

Blown finish: A finish applied to wool/silk material by the process of blowing.

Blow-room; Blowing room: The room in a cotton spinning mill where opening, cleaning and blending of fibre is done.

BLRA: British Launderers Research Association.

Blue: (1) The colour of the sky or of the sea. One of the three primary colours (but not until the 16th century). The word 'blue' as the name of the colour has had an uncertain history. In some languages there is no name for the colour and it was not regarded by the ancients as a primary colour. It has been confused linguistically with the colour yellow – ***flavus*** being both the root of 'blue' and Latin for 'yellow'. In the Russian language there is no one word for blue but two words, one meaning dark-blue and the other light-blue which are regarded as different colours.

Describes any colours having wavelengths between approximately 480 and 445 nanometres. One of the three **additive primary colours**. Coloured or tinted lenses are used to correct various reading disorders including some forms of dyslexia and blue lenses apparently are the most effective. It was also a symbol of piety; associated in medieval times with the Zodiac signs Pisces and Sagittarius and with the planet Jupiter and with darkness. In English folklore, blue represents loyalty, the colour for baby boys, and supposed to bring good luck to brides who heed the superstition to wear on their wedding day '*something old, something new, something borrowed, something blue*'. Blue is the colour of the ring second from the centre in archery. Conservative – in relation to the Tory Party in the United Kingdom.

(2) English and crossbred wool, taken from the best part of the average lustre fleece; spins to 36s.

Blue bafts: Coarse muslin made in Manchester for the African trade for wearing apparel. Blue 'eating' yellow dyes: These are yellow vat dyes which accelerate the photo degradation of the blue (blue-green) vat dyes. Such dyes are only used in very low concentration along with blue dyes where it is a must.

Blue "eating" dye combinations: Catalytic photo degradation is caused by certain yellow and orange dyes on blue vat dyes. The problem occurs mainly in vat dyes.

Blue denim: Strong woven cotton fabric with a warp twill construction, dark coloured warp and light (undyed) weft. Classic fabric for jeans.

Blue flax: Trade term for flax from Bruges, Malines, Ypres, Lokeren, Ghent and other places in Belgium; it is steeped in still water and has a dark colour.

Blue jeans: See **Blue denim**.

Blue mottle: Light and sheer narrow cotton fabric made in England; it has a mottled blue effect.

Blue scale; Blue standards: A standard comparative scale from 1–8 which is used for measuring the light fastness of dyed or printed textiles. The ratings are given as per the fading of these standards along with these blue scale standards, which are dyeing on smooth wool fabric with varying degree of sensitivity to the action of sunlight; 1 = Poor, 8 = Excellent.

Blue stone: Copper Sulphate.

Blue verditer: Blue copper pigment.

Blue vitriol: Copper sulphate.

Blue Wool Scale: British standard (BS 1006-97) commonly referred to as 'the Blue Wool Scale' (BWS) adopted as an International Standard (ISO) and used by some manufacturers as the standard for measuring the **light fastness** of their pigments – BWS 7 and 8 indicating an extremely permanent pigment. See also **ASTM**.

Blue Wool LF Standard: One of the groups of dyed wool fabrics that are sensitive to the amount of light, heat and moisture to which they are exposed.

Blue-black: Black with a touch of blue.

Bluebell: The blue colour of the plant of the same name having blue bell-shaped flowers, also called 'wood hyacinth'.

Blueing agents for bleach goods: Blue colour has the masking effect on bleached yellowish grounds and hence these are padded to give the bluing effect. Blue dyes are generally known as tinting dyes (or tints) for bleached goods. See **Ultramarine blue**.

Bluette: A weft faced 2 × 2 twill weave fabric used for overalls, originally made from blue dyed yarns but now more frequently pieces are dyed. A typical construction was 20 × 16s, 44 × 108 loom state k = 10 × 27; 30 in.

Bluff edges (in garments): Edges finished without outside stitching.

Bluffing: The process of fastening down the front edges of the facings on to the forepart canvas to preserve the shape of edges finished without outside stitching.

Blueing: See **Blueing agents for bleach goods**.

Blumly linen: Linen with twill weave and printed with designs where the ground is coloured and the flowers of white, red and blue colours stand out. Made in Switzerland.

Blunk: A stout cotton or linen fabric made in England, used mainly for printing purposes.

Blanket: A greyish-blue.

Blur (to): To smear paint; to make indistinct.

Blush: Red-coloured; having the same colour as a blush.

Blush-pink: Delicate pink.

Blush rose: A delicate pink; also seen as a dark shade of rose.

Blyat: Bleaunt or Pliat rich silk dress goods of the Middle Ages.

Board (tailors): The place where the tailor works, usually in the form of a table, at which he sits when sewing and at which he stands when he is doing other works. The cutter works at the cutting board.

Boarding: A process of drying and shape setting of stockings after they have been dyed. The stocking are placed on either heated metal forms or wooden forms that are heated in a boarding machine.

Boardy: A term used to describe a fabric with a very stiff hand.

Bob: (1) A commercial variety of American cotton, the early ripening staple measuring 25–28 mm, forming medium size balls; the yield of lint is 30–32%. Also called Ozier; (2) In pillow and needle laces, the ornament connecting the bars between the patterns. Identical with the crescent crown, spine or thorn.

Bobbin: (1) A spool containing the lower thread in a sewing machine.

(2) A cylindrical or slightly tapered with or without flanges or flange, for holding slubbings, rovings or yarn. The term is usually qualified to indicate the purpose of which it is used. e.g., ring bobbin, weft bobbin, or bottle bobbin.

Bobbin cleaner: A machine that removes any remaining yarn or roving from bobbins (quills) after they have been used to the maximum possible extent in the looms, spinning achiness, or in winding machines

Bobbin fining: Trade term for machine-made laces similar to the shadow lace, usually with a heavy thread outlining the pattern.

Bobbin lace: (1) Net-like open work fabrics produced with fine threads (by hand or machine) that are fed from bobbins and worked into a pattern by twisting together and crossing of strong ply yarns.

(2) Also called Pillow Lace, it is hand-made using fancy bobbins of bone, ivory, and now wood, on a hard stuffed pillow, and using long pins with coloured glass or plastic heads to anchor the lace to the pillow. Punched paper patterns are first fixed to the pillow; it is a very old craft.

Bobbin (in sewing): A bobbin is a small spindle that is inserted into the hook of lock-stitch sewing machines. Sewing machine bobbins can be wound by the sewer or pre-wound bobbins can be purchased.

Bobbinet: (1) A fine machine-made net used as a foundation for embroidery and lace and also used for bridal veils.

(2) Net curtains or laces with at least three yarn systems. Binding or bobbinet ends which spirally wrap around warp; patterning ends are its characteristic.

(3) See **Plain net**.

Bobbin lace: See Lace, bobbin.

Bobbin net: A machine-made copy of the original bobbin lace. A machine to perform this action was first invented in the early nineteenth century and produced a hole-mesh fabric.

Bobtex yarn: Simulated spun yarns produced by embedding individual staple fibres in a thermoplastic or adhesive coating on a filament yarn. In principle, a thermoplastic polymer is applied to a filament yarn (as the strength component) and coated with staple fibres before the polymer sets in order to improve bulk and textile appearance. Yarn consolidation is achieved by means of false twist.

Bobtex: ICS yarn system.

Bocasine: A plain woven and very firm linen fabric, given a high finish; obsolete.

Boccadillos: In the Spanish and South American trade a thin, bleached and sized linen, used for shirts, etc.

Boccage: A damask table linen, made in Calvados, France.

Boccassini: Fine, muslin-like, bleached cotton cloth, made in the southern Balkan States.

BOD: Biochemical Oxygen Demand.

Bodiasse: A common Chinese silk.

Bodice: The section of women's garment covering the body from the neck to waist.

Bodkin: (1) A pointed instrument for piercing holes in the cloth.

(2) These are large needles with large eyes and are used for threading elastic or ribbon through castings. The rounded tip is used for pushing out the stitched corners of collars.

An ideal needle size for hand sewing is Pony-Crewel No. 9 because of the length and fineness. It has a large eye for easy threading.

(3) A bone or plastic instrument for removing bastings.

Body: The compact, solid or firm feel of a fabric. Usually obtained by finishing the fabric with PVA, Plasticisers, Polyvinyl acetate, etc., or a mixture along with other finishing agents to get the desired other qualities required along with body.

Body and border carpet: Wall to wall carpeting supplied in width upto a metre which is laid up to the wall skirting board.

Body blanks: Knitted panels with integral ribs, which are then cut and sewn into garments.

Body feed (in effluent treatment): The pre-coat medium that is continuously added to the filter while it is on stream. Its purpose is to create a permeable filter cake.

Body measurements (in garment construction): A body measurement that can be used to build a sizing system or to select an appropriately sized garment.

Body tolerance: See **Allowance (body)**.

Bofu: French silk dress goods of the Middle Ages.

Bogotana: White madapolam in Colombia from 28 to 35 inches wide, having a soft finish.

Bohemian flax: Fine flax of long, clean and lustrous fibres.

Bohemian lace: Bobbin or machine lace with flowing tape on a net ground as characteristic feature. Mostly made as applique lace.

Boil: In general, to heat or maintain a solution at the temperature where the vapour pressure of a liquid equals atmospheric pressure, that is, its boiling

point; in dyeing sometime called "atmospheric boil" to distinguish from boiling under pressure.

In dyeing, unless otherwise specified, it is assumed that the solvent is water; therefore boiling occurs at 100°C (212°F), at sea level. At higher elevations, the boiling point will be reduced. Dissolved solids (solutes) can increase the boiling point, but it is rare for dyeing or preparation liquors to contain enough solute to raise the boiling point by more than a few degrees. In order to get aqueous (water) solutions to a temperature higher than the normal boiling point, the pressure must be increased, using a closed vessel – a "pressure cooker". Closed pressure vessels are used extensively in dyeing of polyester with *disperse dyes*, and may be used in preparation processes such as *scouring* to 7 hasten the process. Operating temperature of around 130°C is quite common.

Boil off: See **Scouring, Boiled-off silk**.

Boiled wool: A process given to woven or knitted wool or woollen fabric to give a coarse crepe-like look by heavy felting or by putting them in a high temperature bath.

Boiled-off silk: See **Silk (boiled off)**. Silk which has all of its natural gum removed by warm solution of soap. The gum is from 17 to 25% of the weight.

Boiled-off cocoons: Undyed thrown silk/raw silk from which natural gum or sericin has been removed by boiling in soap solution. Boiling is off the process of removing sericin from silk or other gummy material from fibres like ramie.

Boiled-off-silk waste: It is degummed silk waste. However in big filatures, basin refuse is subjected to vigorous boiling in alkaline bath mainly to separate out the pupae from the silk waste and the resulting waste is also referred to as boiled-off-silk waste.

Boiler feed water: Water required for boilers, for raising steam. In normal case there is specification for boiler feed water.

Boiler horse power: A traditional unit measuring the power delivered by a boiler. The boiler horsepower is defined to be the power required to convert 30 pounds (13.61 kilograms) per hour of water at 100°F (37.78°C) to saturated steam at a pressure of 70 pounds per square inch gauge (482.6 kilopascals gauge). This power, about 33 471 Btu per hour or 9.8095 kilowatts, is more than 13 times the usual mechanical definition of the horsepower, but it is judged sufficient to run an engine producing one horsepower of mechanical power.

Boiler scale: A more or less hard deposits in the boiler which is caused by the use of untreated or inadequately treated boiler feed water. Boiler scales are firmly adhered to the surfaces of the plates and tubes in contact with water in boilers. If excessive, it leads to over-heating of the metal and ultimately failure. Boiler scale usually contains calcium carbonate and sulphate, magnesium salts and silicates.

Boiler (automatic): Fully automatically controlled steam boiler. This term says nothing about type of construction or type of boiler, but is applied both to flame tube, smoke tube and Benson boilers.

Boiling out: A term for yarn scouring.

Boiling water shrinkage: A test designed to measure shrinkage in a cord, yarn, or high-shrinkage fibre when it is immersed in boiling water while under a tension of 0.05 g/denier.

Bolivia: An expensive, soft, plush fabric usually of wool, and often containing a small amount of special fibre, such as Alpaca or Mohair. It is closely woven and of fine structure with a cut-in ribs running in the warp direction or in the diagonal direction. A thick and firm fabric that is generally used for coats, cloaks, but sometimes it is used as suiting material also. It comes in three separate weight groups – light, medium and heavy variety, ranging from 8 to 16 oz. per yard. Bolivia is made in a 3/3 twill weave.

Bolt of cloth: A rolled or folded length of cloth.

Bois de rose: The dark rich-brown colour of rosewood.

Bokas: A type of blue and white cotton cloth of Surat, India.

Bokhara or Tekke turkoman: (1) All-wool knotted carpet with long pile. Ground is usually of bright-red or reddish-brown with various ochre and other coloured patterns. The weave is not close, the patterns being mostly of geometrical nature; (2) A very light, transparent, natural coloured silk of plain weave.

Bokhara khilim: Made in Turkey, by embroidering square and octagonal designs on a dark red, woven foundation.

Bola: Strong and long fibre, not affected by water, yielded by the bark of some hibiscus tree in India; used for cordage.

Bolbees: (1) A coarse, bleached linen made in Normandy;(2) A light-blue coloured French linen.

Bold: As regards colour – emphasised, standing out and striking.

Bole: An orange-red or reddish-brown earth colour used as a pigment; originated from the unctuous clays of the same name.

Bolivar: A light and loosely woven all-wool flannel dyed in grey shade.

Bolivar county: A commercial variety of cotton from Louisiana, the early maturing bolls yielding about 30% of lint.

Bolivia (Elysian): Made of wool; it sometimes contains alpaca or mohair, woven in Twill – usually 3 up and 3 down. A pile weave (cut) with a diagonal pattern. Pile face which varies in depth. It is soft and has a velvety feel, usually piece dyed and has lines or ridges in the warp or in a diagonal direction on one side. It comes in light, medium and heavy weights. Uses: Cloaking and coatings and some suits.

Boll: A seed case and its contents, as of cotton or flax.

Bolduc: Tape made of linen, cotton or other yarns secured together with adhesive, without weft, often printed. Used mainly in tying of parcels etc.

Bollies: Cotton obtained from the half open or small bolls.

Bolo-bolo: A West African, very strong and long fibre that is yielded by the Honckenya ficifolia.

Bologna gauze: Finest silk gauze, craped, and dyed black; used for mourning veils; white for veils.

Bolsa: Cotton bagging made in Argentina; usually a three-harness drill.

Bolt: (1) A roll or piece of fabric of varying length.

(2) A roll of ribbon 10 yards long.

(3) It is the typical unit of fabric that is packaged and sold by manufacturers in few countries. A bolt usually consists of 12–20 yards.

Bolting cloth: An industrial cloth originally made from silk and used for screen printing and also in flour mills as a sieve. Nowadays, a variety of light-weight open fabrics characterised by their fine and uniform mesh, used for sifting flour (millers bolting cloth), voile fabric window gratings, as well as screen gauze or silk gauze for screen printing. Both warp and weft are accurately spaced and are woven in simple leno or other non-slip construction in order to maintain the mesh size. Bolting cloth contain 50–200mesh opening per sq cm in coarse qualities, 200–400 in medium qualities and up to 3000 in fine qualities.

Bolting silk: Bolting cloth of tightly twisted silk ply yarn, but also of other fibre material like cotton, flax, wool, etc.

Bolton: Counts of fine cotton yarn made of Sea Island cotton in England.

Bolton sheeting: A sheeting of 2/2 twill weave contains condenser weft.

Bombanas: Fibres yielded by the leaves of the Panama palm; used for hat braids, etc.

Bombas: Old name for Brazilian cotton.

Bombast: (1) Any soft fabric which is used for padding; hair or wool stuffing for clothing, during 16–17 century; (2) A medieval oriental cotton fabric.

Bombastic: Having a pale-yellow colour.

Bombax: (1) Cotton tree of the *Malvacea* family, the white or brownish fibre used for stuffing pillows, etc., in South America and West Indies; (2) Medieval name for Bombasine.

Bombay: Old term for a medium weight, grey cotton sheeting in Canada.

Bombay aloe: Fibre-strong fibre, yielded by the leaves of the bastard aloe in India; used for cordage.

Bombay hemp: Gambo Hemp or Bimlipatam strong fibre, yielded by a variety of hemp in India; used as substitute for jute.

Bombazet: A smooth, plain woven or twilled cloth of hard spun English worsted yarn, with single warp, finished without a glaze, found in France.

Bombazine: One of the oldest fabrics known, this was fine silk or wool fabric of plain or twill weave for formal clothes. In black colour, it was the traditional mourning cloth. It is now made from silk warp and worsted weft with imitations made from viscose or cotton.

Bombe: French term in embroidery, dressmaking, meaning puffed, or rounded.

Bombycinous: Having a pale-yellow colour.

Bombyx mori: A species of moth, cultivated silk worm of which feeds on mulberry leaves and produces the finest quality natural silk.

Bonbon: Fine French hosiery.

Bond: In general, of these bond types, hydrogen bonds are weakest, ionic bonds intermediate in strength, and covalent bonds are strongest. Van der Waals forces are something of a special case. See hydrogen bond, ionic bond, covalent bond, van der Vaals forces.

Bond strength (in bonded laminated fabrics): The tensile force expressed in g/cm of width required to separate the component layers under specified conditions.

Bonde: A loosely woven fabric with a curly, hairy surface, usually made with a jersey or stockinet body.

Bonded fabric: (1) A fabric containing two or more layers of cloth joined together with resin, rubber, foam, or adhesive, that does not significantly add to the thickness of the combined fabric, to form one ply. *NOTE 1*: In this context, a thin layer of foam is considered an adhesive when the cell structure is completely collapsed by a flame; *NOTE 2*: Normally, but not always, the backing fabric may be tricot or non-woven.

(2) See **Non-woven fabric**.

(3) See **Fabric, bonded**.

Bonded fabrics: Generic term for non-woven and non-knitted bonded textiles fabric produced from fibres (fibre composites), yarns (yarn composites) or fabrics (laminates). They are sub-divide into yarn composites, fibre composites, stitch bonded composites, swell process non-woven, fused bonded non-woven, spun-bonded non-woven, extruded composites non-woven, milled composite fabrics and knitted composites.

Bonded fibre fabric: Known as non-woven, these are made from a variety of fibres used on the same principle as in felt, but bonded together chemically as, unlike wool, they do not have inherent felting properties. Bonded fibre fabrics on non-woven have developed in many directions, which include household cloths and cleaning pads, industrial and military protective clothing, disposables and as interfacing and other haberdashery items. As non-woven do not fray and have no grain they can be used economically.

Bonded finish: Refers to a finish applied to continuous filament nylon and polyester threads which coats the fibres, giving the thread better ply security and abrasion resistance.

Bonded pile carpets: Pile carpets produced by adhesive bonding a folded material of yarns, webs or fibres to a substrate.

Bonded sewing thread: Treating continuous filament nylon or polyester with a special resin that encapsulates the filaments is called bonding. The result is a tough smooth coating that adds significantly to the thread's ability to resist abrasion and greatly enhances ply security.

Bondi process: Method of producing textile floor coverings. Yarn sheets or loosely woven fabrics are layered in zig-zag form into a low stack, which is stuck on to a backing material and cut.

Bonding: (1) A process for adhesive laminating two or more fabrics, or fabric and a layer of plastic foam. There are two methods: the flame method, used for bonding foam; and the adhesive method, used for bonding face and backing fabrics.

(2) One of the several processes of binding fibres into thin sheets, webs, or battings by means of adhesives, plastics, or cohesion (self-bonding). Also see **Needled fabrics** and **Needle loom**.

Bonding agent (in printing): In screen printing, a bonding agent is applied to the blanket on flat bed and rotary screen printing machine before coating with a thermoplast adhesive in order to ensure satisfactory bonding of the latter.

Bonding agent (in carpets): A material applied to fibre or yarn assemblies with the intention of maintaining the assembly in the required confrontation.

Bonding strength: (1) The amount of force required to delaminate a piece of woven or knitted fabric from its backing.

(2) The amount of force required to break the fusion points found in certain non-woven.

(3) The amount of force required to break the chemical bonds between atoms in molecules and crystalline salts.

(4) See **Peel adhesion**.

Bonding of textiles: Bonding of two textile materials by means of a locally applied adhesive.

Bonding with binder fibres: Specially engineered low melting point fibres are blended with other fibres in a web, so that a uniformly bonded structure can be generated at low temperature by fusion of the binder fibre with adjacent fibre.

Bond strength (of bonded fabrics): The tensile force expressed in ounces per inch (25mm) of width, required to separate the component layers under specified conditions.

Bone black: An ancient black pigment derived from carbonised bones and used to the present day.

Bone brown: Charred bone dust.

Bone white: A white pigment used since the Middle Ages consisting of the main of calcium phosphate.

Bongra: Plain woven and coarse fabric made by the natives of East India from nettle fibres.

Bonnet: A ladies head-dress covering the back of the head and having the brim in funnel form to shade the face.

Bonnet (in cleaning pile floor covering): An absorbent pad which can be mounted under a rotary shampoo machine.

Bonny blue: A blue colour, also referred to as ‘Scotch blue’.

Bontane: Oblong pieces of cotton cloth, usually dyed blue and red; worn as loincloth in Africa.

Bonten: Coarse, sailor's linen with blue and white or red and white checks.

Book: (1) A bundle of skeins of raw silk. A bale of Japanese silk contains 30 books, each 2kg in weight and containing about 30 skeins; (2) A parcel of hanks of raw silk whose mass is usually 2kg.

Book cloth: The basic cloth for a book cloth may be coarse print goods or sheeting in plain weave treated with pyroxylin or starch and clay filled and calendared and used in book binding. The finished fabric may be plain or embossed. The pyroxylin treated fabrics are washable or water-proof and do not blister, chip or peel, while starch and clay filled fabrics on the other hand lose their colour when rubbed with a damp cloth.

Book fold: A method of folding finished fabric in which the fabric is first folded in half width wise, then folded back and forth in equal lengths. Finally, the fold edge on each side is folded to the inside, forming a compact bundle equal in length to one-half the width of the goods.

Book fold processing: Procedure engaged for processing some fine fabrics as viscose, silk, etc. The material is folded in the book form with laps of 90–100cm. This is then sewn with loops of twine (about 25cm long) through one selvedge only. The fabric is then hung into the scouring or soap bath horizontally using a pole which passes through this loop so that the fabric is completely immersed. Good crepe effect is produced by this method. This method is also followed for degumming and weighting of silk.

Book harness: Muslin; a light cotton muslin, upon which the figures are formed by a heavy, extra weft yarn of slack twist, the floats being cut away; used for curtains, etc.

Book muslin: Expensive white muslin-type fabric that is heavily sized. Used for stiffening bags, hats, wide belts, etc.

Bookbinders' cloth: Plain woven cotton fabric, heavily starched and glazed; used for book binding.

Booking: Coarse English woollen flannel resembling baize.

Booking bay: An 18th Century English worsted fabric.

Boomazey: Twilled Russian cotton cloth, printed on the face and napped on the back; used for shirts, dresses, etc., in the winter.

Boombi: Leaf fibre yielded by the Xerotes longifolia in Australia; used for coarse bags.

Booster: Wet steamer.

Booster boxes: American system of small boxes of cooled blank vat solutions as built-in unit to steamers, e.g. in the pad steam process.

Boot hose: A type of stocking used in the 17th Centur y, usually without feet worn in the soft fashionable boots with turned cup shaped tops (bucket tops). The lace-edge of the boot hose is turned over the boot tops. They were worn over the silk stockings to protect them in the long boots.

Borandjik: A very fine white cotton muslin, often crinkled; used for dresses by peasant women in Sertvia and Roumania.

Borassus piasaava: See **Palm fibre**.

Borato: A light-weight fabric of silk and fine wool, produced in the 17th Century in England.

Bordadillo: A floral-patterned silk taffeta fabric used for women's wear in Spain.

Bordat: Coarse cotton fabric used in lower Egypt by the poorer classes for making clothes.

Bordati: Mixture of cotton and silk made in Genoa; made plain or with flower or stripe patterns; some grades used in the Orient as loincloth in earlier days. Now not very common.

Bordeaux: A bluish-red; the colour of Bordeaux wines.

Bordeaux blue: A shade of blue.

Border: Printed or woven pattern which runs along the edge of the fabric; part of pattern in lace, which forms the outer edge.

Border (in sewing): It refers to the pieces of fabric sewn around a finished quilt top to make it larger, frame it or add design elements.

Boric acid/Borax: A mixture of boric acid/borax (sodium borate) is a commonly used non-durable flame retardant finish for cellulosic fibres. It is the safest with regard to carbon monoxide and smoke production during burning.

Boron fibre: A vapour-deposited filament made by depositing boron on a heated tungsten wire. These fibres are being developed for use in aircraft and space applications. They can be woven into fabrics.

Boron fibres: Vapour deposited filament made by depositing vapour phase boron from boron halogen compound on a heated tungsten wire. These fibres can be woven into fabrics, but found more useful in aircraft and space applications for rotors, turbines, etc.

Boron carbide fibres: Manufactured by the reaction of boron chloride and hydrogen with carbon fibres at high temperatures whereby a layer of B4C is formed on the carbon surface. Used in protective clothing against radiation, heat insulation, etc.

Boron nitride fibres: Manufactured by the reaction of boron oxide fibres with ammonia through several intermediate stages of increasing temperature (upto 1800°C). The fibre consists of 99% BN. It is used in aircraft and space applications, heat and electrical insulations, protective clothing against atomic heatflows, etc.

Bordered fabrics: Woven or knitted fabrics with designs running parallel to the selvedge; printed, embroidered, open-work effects, etc. Used for blouses, dress fabrics, home furnishings and household textiles.

Boski: A closely woven dress material, usually from spun silk warp and weft.

Bosnia rug: Originally knitted on plain frames in widths of about 16 inches; patterns composed of straight lines.

Boss: That part of a drafting roll of largest diameter where the fibres are gripped. It may be an integral part of the roll, as in steel rolls, or it may have a covering of leather, cork, etc. In the former case, the boss is fluted.

Bostous: French fabric, woven stout of ply yarn of silk, wool or linen.

Botany twill: Cloth woven from botany quality worsted yarns in various weights. The weaves are 2 and 2 or 4 and 4 twills producing smooth fabric used for men's and women's suiting. An expensive cloth as botany is the top quality worsted yarn.

Botany wool: The term used to describe yarns, fabrics and 'tops' made from fine merino wool.

Botticelli blue: A pale greyish-blue.

Botticelli pink: A shade of magenta.

Bottle bobbin: A bobbin that has a cylindrical barrel and a conical or flanged base, and from which yarn can be withdrawn over the nose, i.e. the top of the barrel. The shape of the fully wound bobbin is that of a cylinder with a conical top.

Bottle green: The dark-green of some wine bottles; also a dark yellowish-green.

Bottom assembly: The components of the lower-most part of a slide fastener which determine whether the slide fastener will be non-separable or separable.

Bottom hair: Short, fine animal hair in the hair undergrowth, generally without any medulla, supple, elastic, high crimp and good felting properties.

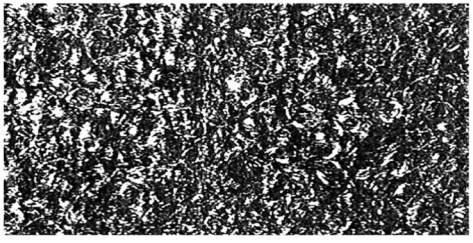
Bottom stop (in zipper): A part affixed to both stringers immediately below or over the chain holding the two stringers together at the bottom and preventing the slider from leaving the chain.

Bottom thread: Refers to the under thread in a stitch formation, usually called a bobbin thread.

Boucle carpets: Carpet with uncut pile loops (loop pile carpets). Since up to approximately 1960, the pile material in loop carpets mostly consisted of hair yarn, boucle carpets were often, but incorrectly, used as a synonym for hair yarn loop pile carpets.

Bouclé: A fabric woven or knit with bouclé yarns; so called because of the uneven (looped) surface. It is usually a threefold ply yarn for worsted or woollen yarn twisted into loops or knots. A mohair loop thread is sometimes used (for lustre) in women's dress goods, sportswear and coatings. Derived from the French word 'boucle', meaning curled riblet or buckled. Boucle yarn may alternate with plain yarn, and the fabric may be all wool, rayon, cotton or a combination of fibres. Sometimes used to denote terry cloths. It is used for sportswear and coats.

Boucle' knit: Knit fabric with a boucle effect on the right side. This is achieved by the introduction of an inlaid yarn fed into the knitting machine and trapped as the knit stitch is made. The fabrics are of medium weight and are usually produced from polyester, nylon and acrylic yarns. Used for sweater dresses, sweater-type tops and jackets.



Boucle' process: See **Boucle-ondule process.**

Boucle' yarn: A novelty yarn with loops which gives fabric a rough appearance.

Compound yarn produced from coarse wool as well as cotton or man-made fibres comprising of a twisted core with an effect yarn wrapped around it so as to obtain wavy projection on its surface. Bouclé yarns may be made from wool, cotton, silk, linen, manufactured fibres, or combinations of fibres.

Boucle'-ondule' process: Carpet manufacturing process in which undulated yarn fabric or webs are laminated on to a backing fabric.

Boudary friction: Friction at low sliding speed (0.02 m/m or less) where lubrication occurs under thin film lubricant conditions.

Bougran: Also called bougrassin, bugram, tailors canvas. Gauze-like cotton or spun viscose inter-lining grey or black in colour, mostly flat in shade. Used mainly instead of excessively thick and heavy buckram.

Bound pile carpet: See **Under carpet**.

Bound seam finish: Recommended for medium to heavy weight fabrics (e.g. corduroy, fleece, etc.). It is a finish for the raw edges of a plain seam in which another fabric encloses the raw edges of one or more seam allowances. It is an excellent edge finish fir, an unlined coat or jacket. Fold under 6 mm (1/4 in.) on the long edges of the tape cut from the lining or under-lining material and press in the edges. Fold the tape length-wise a little off centre so one edge extends slightly beyond the other. Place the bias tape over the cut edge with wider side underneath. Edge stitch close to the top fold line of the tape checking to be sure the seam edge and the tape edge underneath are firmly caught in the stitching.

Bourdalou: Hat-ribbon, finer than grosgrain round the foot of the crown of hats. This trimming is sometimes finished off with a buckle and has been in use since the 17th Century.

Bourdon cord: A cord consisting essentially of a core yarn made up from a heavy central core encased in a wrapping of continuous filament yarn. It is used as a means of accentuating or outlining the motifs in lace fabric so as to give a three dimensional effect to the structure.

Bourdonette: The so called cord produced by twisting several yarns together for use as a heavy thread in lace fabric so as to simulate a bourdon cord.

Bourette: Yarn produced from carded short fibres of lower quality silk waste and combing noils in schappe spinning which is interspersed with knots and slubs. Silk noil (French).

Bourre: Scraps produced during reeling the skeins, twisting and cleaning the threads (Also termed stazza), gum waste (French).

Bourette silk: See **Bourette**.

Bourrelet: A double-knit fabric with raised loops running horizontally across the surface of the cloth, giving a rippled or corded effect.

Bournous: A long woollen cloak with hood, worn by men in the Orient.

Boutonne': Knobbly surface made by knop yarns

Bow: (1) The greatest distance, measured parallel to the selvages, between a filling yarn and a straight line drawn between the points at which this yarn

meets the selvages. Bow may be expressed directly in inches or as a percentage of the width of the fabric at that point.

(2) A fabric condition resulting when weft yarns or knitted courses are displaced from a line perpendicular to the selvedge and form one or more arcs across the width of the fabric.

(3) Curvature of the warp or weft. A fabric is said to be warp-bowed or weft-bowed, according to which set of threads is curved. Weft bow may or may not extend over the full width of the fabric.

Bow straightener: A device for the correction of bow distortion in fabric webs, e.g. with curved rolls.

Bow (double): Two fabric bows arcing in the same direction, as a flattened W or M (depending on the point of view or in the opposite directions).

Bow (filling): The greatest distance measured parallel to the selvedge between a filling yarn and a straight line drawn between the points at which this yarn meets the selvedge.

Bowl: One of a pair of large rollers making a nip.

Box cloth: A thick, heavily milled woollen cloth in 2 and 2 twill, which is buff or tan-coloured cloth like melt on. Used for overcoats and suits and riding clothes.

Box crepe': A crepe made with alternating ends and picks of S twist and Z twist. Since box looms were originally used to make this crepe, it is sometimes called box crepe.

Box leather: Always known as a good quality leather it is 'boarded', i.e. the surface is broken up with parallel creases, a process only applied to top quality smooth leather. It is very expensive and used for making shoes, handbags, etc.

Box loom: A loom using two or more shuttles for weaving fabrics with filling yarns that differ in fibre type, colour, twist, level, or yarn size. The box motion is automatic, changing from one shuttle to another. Examples of fabrics made on box looms are crepes and ginghams.

Box mark: A fine line parallel to the filling caused by shuttle damage to a group of filling yarn. See **Shuttle mark**.

Box motion: A mechanism available for the weaving machines with the shuttles which allow the use of more than one supply of weft. The mechanism holds two or more shuttles and either rotates (revolving box motion) or moves vertically (drop motion to place the required shuttle in the picking position).

Box pleats: A form of pleats achieved by double folding the material alternatively in the opposite direction.

Box stain: See **Box mark**.

Boxtruck: A box mounted on wheels and used for hauling such articles as bobbins and spools from one department of a mill to another.

Bound seam finish: A finish for the raw edges of a plain seam in which another fabric encloses the raw edges of one or more seam allowances.

Boy, Boi: Coarse and loosely woven flannel lining made of cotton warp and wool and noil filling.

Boyau: Dress goods with alternated stripes of satin and rep over a figured taffeta foundation.

Boyd prolific: A commercial variety of upland cotton, the staple, maturing in medium time, measures 20–24 mm, forming small bolls and yielding 30–32% lint.

BP: British Patent, Benzoyl Peroxide.

BPC: British Productivity Council.

BPI: Bekleidungsphysiologisches Institut Hohenstein (German Institute for Clothing Physiology).

Brabant: A Belgian product using grey or half-bleached canvas, made of flax waste.

Brabant edge: Combination of Brussels and Venetian edge worked alternately; used in needle-point lace.

Brabant lace: Same as Brussels Lace.

Brabant linen or Blaams linen: Made around Ghent, Belgium, by the peasants.

Brace web (Suspended web): An elastic or rigid non-woven narrow fabric that is usually 20–30 mm in width and used for the strap of trouser supports known as braces or suspenders.

Bracken: The olive-brown or orange-brown colour of bracken.

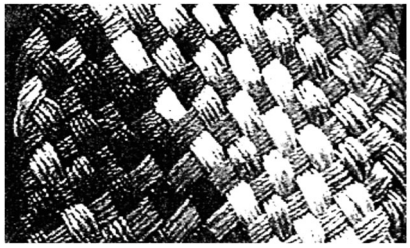
Bracking: Trade term for the compulsory sorting or grading of flax in Russia.

Bradford stuff: Fine worsted dress goods made at Bradford, England.

Bradford system or English system: In spinning worsted yarns, the wool is oiled before it is combed, the slivers are drawn by rolls, are twisted into a rope and wound on bobbins; the yarn is composed of parallel fibres and is quite smooth. See **French system**.

Bragg long staple: A commercial variety of American cotton; the staple is long, but not of uniform length, forming large and late maturing bolls; the yield of lint is 30%.

Braid: (1) A narrow textile tubular or flat band, often used as trimming or binding, formed by plaiting several strands of yarn. The fabric is formed by interfacing the yarns diagonally to the production axis of the material.



(2) In aerospace textiles, a system of three or more yarns which are interlaced in such a way that no two yarns are twisted around each other.

Braid angle: The acute angle measured from the axis of a fabric or rope to a braiding yarn.

Braided fabric: A narrow fabric made by braids. They are frequently used in shoe laces and suspenders.

Braided fabric: A structure produced by interlacing several ends of yarn in a manner such that the paths of the yarns are no parallel to the fabric axis or crossing a number of strands diagonally so that each strand passed alternatively over or under one or more of the other strands. Usually, only narrow width is produced for cords, shoe laces, suspenders, braids for coats and uniforms.

Braided rug: The old fashioned rag rug; the strips of rags are first twisted into wide and flat braids which are wound spirally around a centre, forming a mat.

Braiding: The intertwining of three or more strands to make a cord. The strand forms a regular diagonal pattern down the length of the cord. Main fibres used in braiding are palm fibre, leaf fibre, pandanus fibre, straw fibre and bast fibres.

Braiding fibres: Fibres used for making braids. For e.g., palm fibre, bast fibre, pandanus fibre, leaf fibre and straw fibre.

Braids: Plain or figured narrow fabrics with woven in velour; also conically woven. It is used as velour or clothing (seam) protective edgings.

Bramante: White cotton cloth with stiff starch dressing and semi-glazed finish, in Colombia; it is from 26 to 35 inches wide and is coarser than the Bogotana.

Bran: The brown colour of bran.

Bran or Kleanka: A type of Russian buckram.

Branched chain polymer: A polymer having extensions of polymer chains attached to the polymer backbone. In this type of polymers, the monomeric units are linked to constitute long chains which are also called main-chains. There are side chains of different lengths which constitute branches. Branched chain polymers are irregularly packed and thus they have low density, lower tensile strength and lower melting points as compared to linear polymers. Amylopectin and glycogen are common examples of such type.

Branched chain polymer

Brand: A trade name identifying the manufacturer or product.

Brandeum: Rich silk-and-wool fabric in medieval England; used for palls, girdles, etc.

Brandom process: An English dyeing system for producing multi-coloured yarns. It is based on the principle of local dyeing of yarn in the package form.

Brandenburgs: Long, narrow, ornamental buttons, of silk or wool, on a wooden mould; used chiefly on military overcoats.

Brandon process: A process to produce adhesive bonded carpet. Pile yarn is wrapped spirally around rectangular metal rod to produce an adhesive bonded carpet. The rods are then pressed into a substrate provided with adhesive after the windings have been cut and the metal rod has been removed, a velour fabric is obtained.

Brasovian: Piece-dyed diagonal or twilled woollen fabrics, dyed usually blue; used for women's dresses in the Balkan States; imported from Austria, Hungary.

Brattice: A conveyor formerly made of inter-linked wooden slabs, but nowadays often of metals; e.g. wire mesh for the transportation of textile material through machinery in a tensionless state.

Brawels or Chiadder boraals: White and blue striped East Indian calico of loose weave; used by the African tribes for turbans, etc.

Brazen: Having the colour of brass; made of brass without shame.

Braying: Term used in England to denote the scouring of woollen fabrics after taken from the loom.

Brazilian baize: In England, a medium grade of baize-dyed orange colour.

Brazilians: Regattas woven of Brazil cotton; also madapolams made of that cotton.

Break factor: A measure of yarn strength calculated as: (1) the product of breaking strength times indirect yarn number, or (2) the product of breaking strength times the reciprocal of the direct yarn number. Example: Pound times cotton count.

Brazilwood: A vivid red colour from the dye of the tree of the genus *Caesalpinia* known as the Brazil tree which begot the name of the country rather than vice versa.

Break spinning: A direct spinning process for converting manufactured fibre tows to spun yarn that incorporates pre-stretching and tow breaking with subsequent drafting and spinning in one operation.

Break out: See **Smash**.

Breaker lap: A roll of loosely matted cotton fibres formed on the breaker picker from tufts of opened cotton.

Breaker picker: The first of the two units of older style picker machines. In this unit, the raw cotton is partially cleaned by beating and fluffing and then fed into a finisher picker.

Breaking (bast fibres): The deformation of the plant structure by flattening the stem, loosening the bond between the fibre bundles and the wood, and breaking the woody part into short pieces, to facilitate their removal from the fibre by the next process called scotching. Breaking by means of rollers is often referred to as rolling.

Breaking and opening machine: A line of machines, working as a unit, which tear apart and partially clean the matted, compressed, baled cotton.

Breaking elongation: See **Elongation at break, Breaking Extension (breaking elongation)**. The extension/elongation produced by the breaking force, i.e. the maximum force applied during a determination of breaking strength.

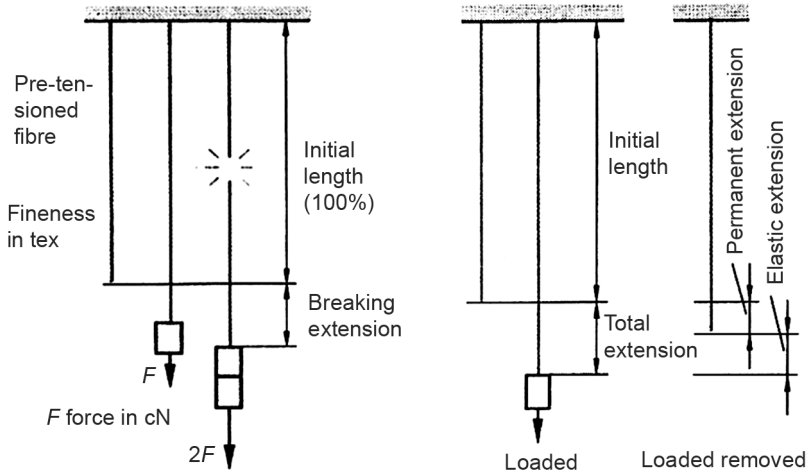
Breaking force: The maximum force applied to a material carried to rupture.

Breaking force (in testing sewn seams): The force that is repeatedly applied to a test specimen.

Breaking length: A measure of the breaking strength of a yarn; the calculated length of a specimen whose weight is equal to its breaking load. The breaking length expressed in kilometres is numerically equal to the breaking tenacity expressed in grams-force per tex.

Breaking load: (1) See **Tensile force**. The maximum load (or force) applied to a specimen in a tensile test carried to rupture. Use the perfect term, Breaking force.

(2) The maximum load (or force) applied to a specimen in a tensile test carried to rupture. It is commonly expressed in grams-force (kilograms-force), pounds, or newton's (Also see **Breaking strength**).



Breaking load (knot): The breaking load of yarn or a fibre specimen having a knot in the portion between the clamps.

Breaking load, loop: The breaking load of a specimen consisting of two lengths of an individual strand looped together, so that one has both its ends in one clamp of the testing machine and the other length has its both ends in the other clamp.

Breaking machine: A machine for continuously softening stiff fabrics. The fabric is drawn under tension over the edges of bars (knife edge machine) or round rollers implanted with studs.

Breaking point (on a force-elongation curve or stress-strain curve): The point corresponding with the breaking force or the breaking stress in a tensile test.

Breaking ratio: See **Break factor**.

Breaking strength: See also **Tensile strength**.

Breaking strength: (1) The maximum resultant internal force that resists rupture in a tension test. The expression "breaking strength" is not used for compression tests, bursting tests, or tear resistance tests in textiles.

(2) The load (or force) required to break or rupture a specimen in a tensile test made according to a specified standard procedure. Also see **Breaking load**.

(3) Strength expressed in terms of breaking force. The maximum tensile force observed during a test in which the specimen is stretched until it breaks.

Breaking stress: The maximum tension (expressed in Newton) developed in a specimen stretched to rupture. The force is usually related to the area of the unstrained specimen. If the actual stress, defined in terms of the area of the strained specimen, is used, then its maximum value is called "actual breaking stress".

Breaking tenacity: The tensile stress at rupture of a specimen (fibre, filament, yarn, cord, or similar structure) expressed as Newton's per tex, grams-force per tex, or gram-force per denier. The breaking tenacity is calculated from the breaking load and linear density of the unstrained specimen, or obtained directly from tensile testing machines which can be suitably adjusted to indicate tenacity instead of breaking load for specimens of known linear density. Breaking tenacity expressed in grams-force per tex is numerically equal to breaking length expressed in kilometres.

Breaking tension: Breaking tension, as defined, is independent of the acceleration due to gravity. See **Breaking stress**.

Breaking toughness: (1) Toughness up to the breaking point of a material.

(2) The actual work per unit volume or unit mass of material that is required to rupture the material.

Breaking (in flax preparation): Breaking removes the woody centre from the retted and dried flax by being passed through a series of fluted rollers. The particles of woody matter adhering to the fibres are detached by scotching.

Break-open (in testing thermal protective clothing): A material response evidenced by the formation of a hole in the fabric which allows flame to pass through the textile.

Break-out: See **Smash**.

Break-out pressure (for inflatable restraints): The pressure level during deployment which ruptures the module cover.

Breast beam: Part of loom. It is same as Front rest. See Cloth fell. It is the horizontal Cross-piece on the loom directly in front of the weaver. The woven cloth passes over the breast beam on its way to the cloth beam.

Breathable coat: A coating that repels water, but allows perspiration to pass through while allowing garments to be comfortable and waterproof. Used in garments for active wear and winter sports.

Breathability: The term is used to describe water vapour permeability, water proofness, or air permeability. The result is an overall picture heat regulatory processes which describes wear comfort of a fabric.

Breacan: Original (Gaelic) term for the tartan.

Breannes: Bleached, French linen of loose texture, similar to the BrionnB.

Breeches: Knee trousers.

Bremen blue: Blue copper pigment.

Brenne: Light-weight woollen cloth, often with silk stripes; formerly made in France.

Bresilienne: Corded French silk dress goods and vesting; also an all-wool, twilled fabric made in France in the 19th century.

Bretanas: Variety of plain woven fabrics of pure linen, or mixed with cotton; used in Latin America, imported from England.

Breton embroidery: In silver, gold and coloured silk thread over cloth, silk or mesh; to be used as borders. Flowers, geometrical designs and Breton patterns are the motifs, outlined and then filled out, usually chain and satin stitches being used.

Breton lace: A net ground with heavy embroidered designs. Usually the embroidery threads are coloured.

Bribe: (1) A locally used term for a woollen fent.

(2) English term for a piece of cloth containing flaws and cut away from the length.

Brick: The deep orange-red of brick; **lateritious**.

Brick-red: Having the colour of red brick; in the United States, a brownish- or yellowish-red colour.

Brick stitch: Used as background in antique embroideries; sort of couching, the effect being similar to a brick wall.

Bridal lace: Drawn work in the 16th and 17th centuries, worn at weddings. The designs represented coats of arms of the families.

Briddle: A narrow strip of material which is attached to the inter-lining along the roll of the lapel to hold and control it.

Bride epingle: A needle-made mesh ground for real lace, each side covered with button-hole stitches. To be found on early samples of Argentan point.

Bride Ornee: Bride covered with button-hole stitches and ornamented with picots, etc.

Bride picotee: In point laces a hexagonal buttonholed net, each side ornamented with a couple of picots or pearls.

Bridge (in button): The area between the holes partially covered by the sewing threads with dimensions varying upon design and end use.

Bridge top stop (in zipper): A part affixed immediately above the chain, holding the tops of the two stringers together and preventing the slider from leaving the chain.

Bridge water: Light English broadcloth made in the 16th century.

Brief (in designing): Describes a design project.

Briefing meeting (in designing): Where the work that is required and is stablished/when the designer finds out what is required for them.

Bright: The term applied to fibres whose lustre has not been reduced by physical or chemical means; the opposite of dull or matte.

Bright: (1) Characterized by a high degree of lustre, brilliant, opposite to dull and relatively vivid in colour.

(2) Open work effect within a wale in lace furnishings, obtained without distorting the warp thread.

(3) Descriptive of textile materials, particularly man-made fibres, the normal lustre of which has not been reduce by physical or chemical means.

Bright fibre: A fibre without or with minimal quantities of titanium dioxide; also

- semi-bright fibre: a slightly delustred fibre
- semi-dull fibre: usually terms delustred fibres with 0.25-0.5% titanium dioxide contents
- dull fibre: fibre with 0.5-1% titanium dioxide
- superdull fibre: fibre with 1-3% titanium dioxide

Bright pick: A tight pick that is usually found in a fabric containing a continuous filament weft.

Bright silk: Thrown silk, completely boiled off and dyed.

Bright yarn: A general term used in the manmade fibre industry for lustrous yarn, staple or tow. It contains no or only a trace of delusterent (TiO_2). It is compared with dull, semi-dull or extra-dull yarns or fibres.

Brightening agent: (1) See **Optical brightener**.

(2) An additive which when applied to textiles heightens their brightness.

Brightening acid: A mixture of lactic and tartaric acid. Excellent scrooping agent, especially for achieving a scroopy silk handle.

Brightness: The dimension of colour that refers to an achromatic scale, ranging from black to white. Also called lightness, luminous reflectance or transmittance (q.v.). Because of confusion with saturation, the use of this term should be discouraged.

Brighton: Not reversible diamond patterns; used on dress and other fabrics; the diamonds are alternately small and large. It is a honeycomb weave made in straight draft, the threads in a repeat being divisible by four.

Brighton embroidery: It has geometrical patterns upon coarse canvas foundation.

Brighton honey comb: Made of cotton, a fabric with typical honeycomb effect. A waffle weave constructed with depressions that are not lined up. The depressions on the face of the cloth are not matched by equal depressions on the back. This structure is often called Brighton Honeycomb.

Brilliancy: (1) Physical dimension of brightness or the impression of brightness.

(2) SI unit derived from candela per square metre. Brilliancy= Light intensity of the light source/luminous area of the light source.

Brilliant: Sparkling, shining, vivid, reflecting a large amount of light or brightness, lustrous and gleaming. See **Brilliant dyes**.

Brilliant dyes: Colorants including brilliant red, blue, orange, violet, black, yellow, green, flavine and pink.

Brilliante: Brilliante is a cotton fabric of light or medium weight, distinguished by small, detached figures, usually of geometrical or simple character, arranged on a plain ground. The figures are formed with the filling that is soft twisted. The goods are generally used for shirtwaists and dress goods.

Brilliantine: Light-weight, twilled dress goods, woven with cotton warp and lustre, worsted or mohair filling, dyed in the yarn in the same or various colours. The filling covers the face. The patterns are usually formed by floats

Brilliants: Light-weight cotton dress fabric or shirt waisting, made with fine warp and a heavier, slack twist filling which forms little, geometrical figures with floats on a plain woven ground. The fabric is often mercerized.

Brin: A single filament of silk resulting from the degumming of bave withdrawn from the cocoon. Two brins (from each gland on either side of the body of silk worm) are cemented together by gum or sericin at the spinneret of the silkworm to emerge as a bave or silk strand.

Brine: Often this means seawater or a solution of common salt, NaCl. Ordinarily, seawater has about 35,000 mg/l (3.5%) of dissolved salts. Some brines have 3,00,000 mg/l (30%) of dissolved salts. Brine is sometimes defined as water with more than 30,000 mg/l of dissolved matter.

Brins: The two single filaments of pure silk, encased in natural gum, thus forming the silk-fibre as produced by the silk worm. The two brins are produced by two glands in the worm.

Bri-nylon: A nylon fibre, used in the manufacture of carpets, lingerie, nightwear and light-weight knitted materials. Sometimes the surface is brushed to form a short pile. It is non-absorbent and hence dries quickly.

Brionne: Bleached, sheer, French linen of various grades; used for curtains.

Brique: A light brownish-red; found only in the OED and French dictionaries.

Bristle: (1) A short, stiff and coarse fibre.

(2) The hair of a hog.

Britch: The lowest grade of wool in a fleece, taken from the thighs and spins 26s to 28s.

British raised: Work short-ends of heavy wool yarn are fastened by the middle to a coarse canvas foundation and then brushed out, resembling a pile.

British Standards Institution: The British Standards Institution (BSI) is the world's leading standards organization, and facilitates the setting of standards, inspections and quality management. It is a non-profit distributing organization, independent of government, industry or trade associations, whose operating divisions (product certification, quality assurance, standards, testing and training services) are designed to further the use of standards. Manufacturers, importers and retailers rely upon BSI testing to independently assess the performance of their products for safety, reliability and quality. Its certification trade mark, the Kitemark, has been established for more than 90 years.

British gum: British gums are made by dry heating starch granules at 180°C without acid. Some of the 1–4 acetal linkages are broken and 1–6 are formed. A more highly branched, lower molecular weight product is formed having

more reducing end groups. British gums are more water soluble and produce higher solution viscosities. They are mainly used as print paste thickeners, especially for vat dyes. Other roasted starches (e.g. potato starch) are also marketed as British gum.

Brittle point: The temperature at which a polymer no longer exhibits viscoelastic properties.

Brittleness: See **Flexibility**.

Broach: Indian raw cotton, having a moderately strong and fairly clean staple of golden colour.

Broad bandpass radiometer: A relative term applied to radiometers that have a bandpass width of more than 20 nm at 50% of maximum transmittance and can be used to measure irradiance at wavelengths such as 300-400 nm or 300-800 nm.

Broad couching: Similar to the brick stitch, only the laid threads are slightly drawn together.

Broad goods: Woven fabrics that are 18 inches or more in width.

Broad rash: Heavy coating made of worsted warp and woollen filling in the 18th century in England.

Broad rib fabric: A rib fabric in which groups of three or more adjacent wales are of the same type either face or back.

Broad silk: Wide silk dress goods and linings.

Broadcloth: The term covers a variety of materials. In one way it has very little real meaning. Originally it was used to differentiate fabrics woven on broad looms say 36 in and wider. Today the term is generally used for a fine plain woven cotton cloth from 36 to 40 in wide, suitable for men's shirts and women's dress goods; when these are made from single yarns with constructions 130 × 60, it is often called single broad cloth; when ply yarn is used say 2/80s both warp and weft, it is called ply broad cloth. When in a broad cloth two-ply yarn in the warp and single yarn in the weft is used, it is called semi-broad cloth.

Broadcloth (cotton): A tightly woven, lustrous cotton or polyester/cotton blend fabric in a plain weave with a crosswise rib. It resembles poplin, but the rib is finer, and broadcloth always has more picks than poplin. The finest qualities are made with combed pima or Egyptian cotton.

Broadcloth (wool): A smooth, rich-looking, woollen fabric, usually from Merino wool, with a napped face and a twill back. Better grades have a glossy

and velvety hand. Woven on wide looms so that even after processing it is fairly wide fabric, made with a high nap, which is the pressed down to give a compact look and weave is not visible. Dyed in solid shades, it can be made as an all wool fabric or worsted warp and wool filling. It may have 12–14 oz. per yard.

Broad cloth (rayon): May be composed of a filament rayon warp and spun rayon filling or it may be made entirely of spun rayon warp and weft. It comes in a variety of constructions, but one popular construction is 110 × 90 using 50s warp and filling (spun). Fabrics are usually made 40 in wide. Another construction is 90 × 70 with 100 denier rayon warp and 2/30s spun rayon filling.

Broad goods: Woven fabrics that are 18 inches or more in width.

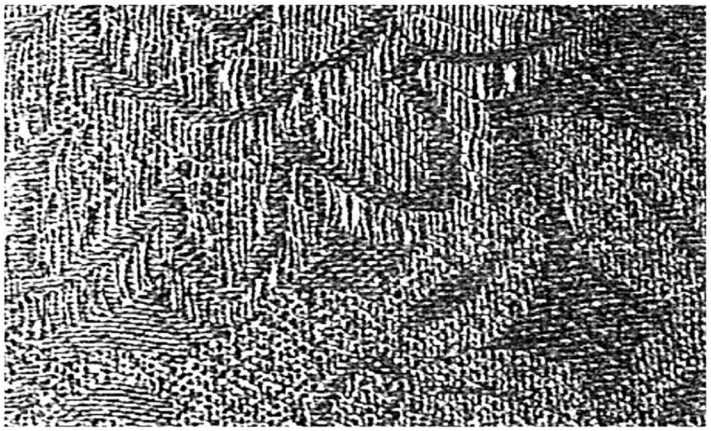
Broad spectrum antimicrobial: An anti-microbial that effectively controls or kills at least 3 of the basic microorganism groups. This term is important to help give a specific encompassing term to the technologies that offer protection from the gamut of microorganisms, without the sometimes vague nature of the term anti-microbial, which could mean that it kills just one type or kills many types.

Broadcloth (silk): Originally, a silk shirting fabric so named because it was woven in widths exceeding the usual 29 inches. It has a high lustre and smooth finish. White, coloured or stripes, the material can be used for shirts, sportswear, pyjamas and dress material.

Broadloom: A term that refers to carpets woven in widths from 54 inches to 18 feet, as distinguished from narrow loom widths of 27–36 inches.

Broadtail: A flat, lustrous fur that is slightly wavy. The pelt of the young unborn Persian lamb.

Brocade: (1) Multi-coloured or self-coloured floral raised design, sometimes with metal threads added. Made on jacquard loom, usually in satin weave. Originally always silk, it can now be viscose, cotton, acetate, polyester and many blends. A typical construction is with 100 denier rayon warp with 250 denier bright rayon filling, 180 × 60, width 45 inches. Yarns can be dyed or even plain dyed after weaving. In true brocade, the design is produced by additional coloured threads on the weft. These pass across the back of the cloth unused and are brought to the surface when required. The wrong side is easily identified by these threads or floats. In addition, threads can be woven into the back of the fabric. Some brocades are heavy while some are crisp. Brocades are used in clothing, furnishings and upholstery.



(2) (i) Originally a rich and heavy silk fabric, with flowers, foliage, figures, etc., woven in gold or silver core yarn. It was of Oriental origin; used for state and church vestments; (ii) Silk fabric having usually large flower or other pattern design woven in a colour different from the foundation, each filling thread usually reaching from selvage to selvage. The patterns are usually of an embossed character.

Brocaded satin: It has a foundation made in satin weave, the pattern being woven in another weave or made in velvet. Brocaded velvet can be either pile over pile or velvet patterns over a plain woven or other foundation. See also **Lame, Swivel and Lappet**.

Brocade embroidery: The designs traced over the foundation are outlined or also filled in with stem stitch in various coloured heavy wool or floss silk yarn.

Brocade velvet: Velvet with the pile sheared at different heights to form a design, sometimes checks, or floral or the like. Plainer designs in dark colours are used for men's jackets. It is very expensive.

Brocade: (1) A rich, Jacquard-woven fabric with an all-over inter-woven design of raised figures or flowers. The pattern is emphasized by contrasting surfaces or colours and often has gold or silver threads running through it. The background may be either a satin or a twill weave. It is often made with gold or silver threads. The design appears on the face of the fabric which is easily distinguished from the back. It is used in evening dresses, wraps, draperies, upholstery and decorative purposes. The term brocade is derived from the Spanish word that means "to figure".

(2) A term describing a cut-pile carpet having a surface texture created by mixing twisted and straight.

(3) (decoupe') An additional effect thread is inserted into the ground weft. If structures are far apart from each other due to the pattern, the floats are cut. This makes it more difficult to extract the floats on the back; the fabric weight is also reduced.

Brocading: Weaving process for introducing extra silk, gold or silver threads into the cloth to form patterns.

Brocart or Brocat: French for Brocade. Brocatelle (1) Originally a heavy, cross- ribbed furniture and drapery fabric, similar to the brocade, having Jacquard figures and usually made of silk warp and cotton filling, but also of all silk, all cotton, or all wool; (2) Modern dress goods and vesting, similar to the furniture drapery, but made in lighter weights and often all silk; (3) Silk fabric having glossy and satin figures on a less glossy taffeta ground of same colour.

Brocatelle: (1) A fabric similar to brocade with a satin or twill figure in high relief on a plain or satin background.

(2) Silk, rayon, cotton and synthetics. Woven in Jacquard – double or backed cloth. Originally supposed to be an imitation of Italian tooled leather – satin or twill pattern on plain or satin ground. It is recognized by a smooth raised figure of warp-effect, usually in a satin weave construction, on a filling effect background. True brocatelle is a double weave made of silk and linen warp and a silk and linen filling. Present-day materials may have changed from the XIIIth and XIVth Century fabrics, but they still have the embossed figure in the tight, compact woven warp-effect. While brocatelle is sometimes classed as a flat fabric, it shows patterns which stand out in "high relief" in a sort of blistered effect. A fabric made on Jacquard looms with additional weft thread of cotton, rayon or linen to bring out the pattern producing high relief. The patterns are often twill on a plain or satin background. It is used as draperies, furniture, coverings and general decorating purposes as well as all kinds of after 5 wear.

Brocatine: Brocade with raised patterns.

Broche: A large number of fabrics decorated with special threads which are introduced together with the regular warp or filling threads, but which do not form a necessary part of the structure itself. These threads are carried as floats at the back of the fabric, or are clipped away and form coloured designs. Fabric with patterns which look as they have been embroidered. Genuine broche' are made on swivel looms. Beside warp and weft, these looms have a third thread system which insert small shuttles controlled by a jacquard loom.

Broche/Scherli: A special type of patterned curtain, produced with additional laid-in yarns in a ground fabric. The connecting yarns between the pattern repeat would be cut-off or warped, either mechanically or by hand (Scherli). Materials used: Cotton, Polyester, Blends of Polyester/Cotton.

Broche (in carpet and floor coverings): A assemblage of yarn inserted in the same dent of the sky of the loom, the group consisting usually of two ends of the chain warp, the yarn of the stuffer warp and those of the pile.

Brochure-blue: The clear shimmering blue colour of the sea, as appearing in all travel brochure illustrations.

Broccoli green: The green shade of the vegetable broccoli.

Brode: Embroidered.

Brodequin: Embroidered hosiery.

Broderie: French name for embroidery.

Broderie anglaise: The fabric is plain weave cotton, or polyester and cotton in which shaped holes are punched and then embroidered. It can be white, or plain colours and self-coloured embroidery, sometimes contrast embroidery also. Fabric can be with less or more embroidery, can have even scalloped edge with embroidered only in the border.

Broderie en lacet: Braid stitched to satin foundation, the patterns being filled in with stitches imitating lace.

Broderie de malines: Early name for Malines lace.

Broderie de nancy: Drawn work, ornamented with coloured silk.

Brodie: A tartan, consisting of equal wide black and green stripes, both ways; these are broken up in the middle by a narrow red stripe (both ways and two still narrower stripes, one on each side of the red). Half of the green stripe is taken up in the middle by a blue stripe each way.

Broella: Coarse woollen fabric; used for clothing by the English country people in the Middle Ages.

Broken colour: A diverse term used to describe a variety of effects such as the technique of interspersing flecks of colour with another colour or colours used, in particular, by the impressionists and creating a blended effect when observed from a suitable distance; the effect produced by the random distribution of particles of colour on a surface; pure colours intermixed with black; the result of mixing one colour with another; the effect of an underlying layer of colour showing through a super-imposed layer of oil paint; a new tone of a particular colour created by juxtaposing another colour with it; the application of different shades of paint or glaze to a base coat which is broken up in a number of different ways to create a special finish for decorative purposes – see, for example, **Graining** and **Marbling**.

Broken end: A broken and untied warp thread in a fabric. There are numerous causes, such as slubs, knots, improper shuttle alignment, shuttle hitting the warp shed, excessive warp tension, faulty sizing, and rough reeds, heddles, drop wires and shuttles. See also **End out**.

Broken end: A warp-way line where a warp yarn is absent for part or all of a piece and that is caused by a warp yarn break that has not been repaired.

Broken ends: In weaving, warp ends are subjected to high loadings, the physical mechanism of which is extremely complex. Sizing is necessary to prevent warp fatigue, particularly due to repeated extension. See **End out**.

Broken filaments: Self descriptive, see **Filamentation rupture** of individual filaments (usually during winding or weaving) that results in the appearance of a fibrous or hairy surface, which may be localised or general, in a fabric made from flat continuous filament yarn. In multifilament yarn, breaks in one or more filaments.

Broken pattern: Defect in printing where the pattern is broken due one reason or other. Also used in any other design breaks such as woven or knitted.

Broken pick: A pick that is present for only part of the fabric width. A broken weft thread in a fabric. Usual causes include too much shuttle tension, weak yarn, or filling coming into contact with a sharp surface.

Broken selvage: See **Cut selvedge**.

Broken twill: A strong cotton fabric with a warp cross twill weave where the continuity of the twill is broken by design. One way to weave broken twill is to move the diagonal to the left for part of the repeat and then skip one or two sheds in the regular twill sequence and finish out the repeat in the opposite direction until all the sheds have been used. For a 2/2 twill the

treadling sequence will be 1,2; 2,3; 1,4; 3,4 repeat 2,3. The fabric has a high resistance to slippage and is characterized by a particularly 'full' handle. It is used for leisure wear.

Broken weave: See **Crack**.

Broken warp: Small pieces of cut or missing warp thread.

Bromate discharges: An oxidative discharge, more of academic interest presently. Example, a coloured discharge on indigo can be obtained by printing a mixture of sodium bromate or bromite and chlorate of alumina (aluminium oxide), followed by steaming, washing of and subsequent dyeing (with alizarin).

Bromelia fibres: Leaf fibres of the *Bromeliaceae* family which are grown in tropical and subtropical regions of South America. They form a subgroup of hard fibres, which include pineapple fibres, caroa fibres, silk grass, etc. In contrast to the agave fibres they are easily extracted from the ripe leaves, and they have high fibre content. Mainly used for making ropes, braids, etc.

Bromite desizing: A process for desizing by the oxidative degradation of starch method using sodium bromate. Presently of academic importance only.

Bromothymol Blue (BTB): Used as an indicator in desizing with diastases for pH control within the optimum specified range.

Bromsia: A type of Levant raw silk.

Bronze pigments: These are manufactured from metal granules in special ball mills in the presence of lubricants to prevent cold bonding of particles. See also leafing pigments and non-leafing pigments.

Bronze: The brilliant brown colour of the metal – bronze; derived from 'Brindisi', the town in Italy. Bronze sculptures left to the elements will, by a process of oxidization, develop a patina of ***verdigris*** and turn green in colour.

Bronze powder: See **Metal powder**.

Bronze printing: This is a generic name where gold-bronze pigment prints are done with copper/zinc alloy powder, whereas the real bronze is an alloy of copper/tin. Different shades are produced by changing the copper content in the alloy. Copper colour – 100% copper; pale gold colour – 90% copper; vivid pale gold colour – 80% copper; deep gold colour – 70% copper. Also, silver bronze is produced by aluminium powder.

Bronzing of dyeing: Dyeing fault manifest as a metallic iridescent appearance associated with poor rubbing fastness. Causes can be inadequate pre-treatment, dye precipitation (e.g. Hard water), over saturation (excess dye) on the fibre

and premature oxidation of vat and sulphur dyes during dyeing. A coppery lustre on the surface of a fabric which is caused by the presence of excessive dyestuff during dyeing, or by precipitation of the dyestuff during the dyeing process. See also **Gilding**.

Brookfield viscosity: Standard measurement of viscosity expressed in centipoise.

Brooks: An early maturing commercial variety of cotton from Louisiana, yielding about 31% of short staple.

Brown: (1) An early maturing commercial variety of cotton from Mississippi, yielding a short staple; (2) Wool-sorting term for about 30s quality, taken from the haunches of the fleece; and is of lower grade than "neat."

Brown: The colour of earth and of wood; in the wavelength range of approximately 620–585 nanometres. Latin had no specific word for 'brown'. The Hebrew word used for 'brown' as used in *Genesis* xxx: 32 means 'sun-scorched' and a variant form of black. Its early meaning was 'dark'.

Brown chalk: Another name for ***umber***.

Brown Egyptian: Cotton, having a long, strong, clean and easily worked staple of golden-brown colour.

Brown Holland: Originally unbleached or partly bleached plain woven linen; the latter sized and used as furniture cover or summer clothing. It comes also in dark grey and black.

Brown osnaburgs: Coarse, unbleached linen, made in Ireland and Scotland of strong hemp or linen yarn for the American trade.

Bruce: Tartan with bright-red ground, the plaid formed by groups of four (two wider in the middle and two narrower at the sides) stripes in dark green, which are together as wide as the red squares. In the middle of the red squares alternated narrow yellow and white stripes run each way.

Bruckner Solvanit Process: The Bruckner Solvanit continuous process is used for simultaneous scouring, cleaning and for shrinking. The cloth is transported by a patented figure 5-16. Continuous solvent scouring, and finishing machine (Courtesy of Sperotto Rimar, Italy). Paddle wheel which ensures thorough removal of contaminants by counter current flow of fresh perchloroethylene. Relaxation and bulking of knitted goods occur during solvent flash-off.

Bruges lace: A bar lace, originating from Gruges. Very similar in appearance to Honiton Lace, woven as a tape with a fine thread. Coarse types are used for curtains, bedcovers and tablecloths.

Bruise (in fabrics): An area that has been subjected to impact or pressure, which differs from the adjacent normal fabric. See Abrasion mark.

Brunneous: Dark brown.

Brunswick: Twilled fabric, similar to cashmere and is made of wool and cotton.

Brush: A hand held cleaning tool consisting of a base into which bristles are inserted.

Brush binding: A braid with a stiff fringe along one edge, used to bind the bottom of skirts.

Brushed acrylic: Light to medium weight woven fabric with a brushed effect on one or both sides; often printed and used for dresses, warm shirts, children's clothes, etc.

Brushed acrylic knit: Made of acrylic fabric with jersey backing with the rightside brushed into a furry surface. Used for dressing-gowns, sleeping bags, baby coats, casual jackets, toys, collars and cuffs.

Brushed cotton: Plain or printed cotton fabric which are slightly brushed on one side to add warmth. This inexpensive, creasing fabric often used for children's warm clothes, winter blouses and skirts. Brushing can be on the right or wrong side.

Brushed denim: Denim weave cloth, usually all cotton, with a brushed finish on the right side. It has a softer appearance against the harsh handle conventional denim, which is a disadvantage of denim. It is not as tough as denim but hard wearing and is used generally for shirtwaist dresses, safari-style jackets, trousers and jeans, casual shirts for men and children's clothes.

Brushed fabric: A fabric which has been brushed to raise the fibres to get a fuller handle.

Brushed nylon: Nylon Jersey fabric brushed on one side to make it more warm, but has the disadvantage of being more static than plain Nylon Jersey. Usually used only for nightwear, and sheets. Being hydrophobic, even though washes well it dries quickly.

Brushed polyester: A fine fabric with a brushed surface resembling velveteen in appearance.

Brushed yarn: A yarn has been processed to raise surface hairs in order to achieve greater bulk and softer handles. The brushing which normally takes place by abraiding the surface of the yarn with card clothing is usually performed on boucle, loop and other fancy yarn.

Brushing: (1) A finishing process in which rotating brushes raise a nap on knit or woven fabrics. Brushing is used on sweaters, scarves, knit underwear, wool broadcloths, etc.

(2) An operation in dry-finishing which serves particularly the cleaning of woven textile fabrics when fibre fly, thread or dust has to be removed. Brushing units are employed before singeing, and dyeing and printing. In the latter case it helps to remove the loose thread, dust, etc., which will hamper dyeing or printing. In the former it helps in a better singeing.

(3) Felt hats are brushed in the warm wet state in order to fix the nap in the case of long haired surfaces to produce a silken lustre and to improve the handle with the hair hats.

(4) Act of transferring newly hatched silkworms from the eggsheets on to the rearing trays, or act of removal of floss from the cooked and boiled cocoons for collections of ends for reeling.

Brushstroke: A print style in which colour looks as if it had been applied with a brush.

Brussa: Loosely woven half-silk veiling of varying weave, made in Asia in olden days.

Brussels carpet: Loop pile carpets, woven on a Wilton loom, over bladed wires; originally manufactured in Brussels. Depending on the pile materials used on these carpets, these are known as wool or hair carpets.

Brussels lace: The bobbin lace has hexagonal ground, two sides being of four threads plaited four times and four sides of two threads twisted. The outlines of the flowers and the veins of the leaves are of raised plaited cordonnet – (1) The ground is worked around the flowers, the brides and toile are very elaborate; (2) In needle point lace, the hexagonal ground is made in strips of one inch width and then joined with the raccroc stitch. The cordonnet is not buttonholed; (3) Modern Brussels lace is composed of sprigs appliqued to machine-made ground. Originally made with fine linen threads. In this lace, the motifs are made as bobbin lace and then appliquéd on to a mash ground. Now all fibres may be used and usually motifs and the mesh are machine-made.

Brussels quilling: Plain cotton net with an extra twist around the mesh; used for frills, etc.

Bruyère: A greyish-purple; the colour of heather.

BTTG: British Textile Technology Group.

Buaze: Strong, fine and durable bast fibre, yielded by the twigs of a species of securidacea in Zambesi; used for fishing net by the natives.

Bubble colouration process: A non-repeating patterned effects in polygon or ring shapes as well as grape like motifs are produced on textile fabrics from dye containing bubbles (produced by blowing air through pad liquor containing surfactant and a thickening agent. The bubbles are allowed to impinge on the backside of the fabric or they can float on the fabric surface. Discharge effects and designs produced by the application of fast colour salts on naphtholated grounds are also possible by this method.

Bubble-gum pink: A sickly gaudy pink which is a characteristic of bubble-gum.

Bubbles: Same as **Blisters**.

Buchanan tartan: Even-sided plaid with the following stripes repeated in both ways; red, narrow blue, yellow (split in the middle by a narrow blue), narrow blue, narrow green, narrow blue, narrow green and narrow blue. The wide red stripes are split in the centre by a narrow white stripe.

Buck: The lower, static, working surface of the pressing machine which may incorporate the shape or contour on to which the garment is laid.

Bucket spinning: See **Pot spinning**.

Buckinghamshire lace: A very fine hand-made lace originated in Buckinghamshire. It was characterised by a diamond mesh ground, was often narrow and was used only for trimming. Bobbin lace with plaited ground similar to that of Lille or Valence. It is made in one piece, usually in narrow widths and is used as baby lace.

Buckle stitch: In bobbin laces, the stems and fibres of the sprigs are often formed of a braid made in buckle stitch.

Buckram: A stiffened fabric of cheap cotton or hemp linen yarn mostly of natural colour. With good elastic resilience produced by impregnating a plain weave fabric with fillers and stiffeners to make the fabric stiffer. Some grades are ply fabrics with 2 face ends for each backing end and 1 face pick for each back pick. A characteristic construction is 36 × 24 with 22s yarn for the face warp and 12s for the backing warp and for face and back filling. Sometimes two layers are glued together as per the end use. It is used in lining, waistband and bookbinding, etc.

Buck skin: (1) A suiting similar in handle and appearance to, but heavier than a doeskin fabric, made from fine merino wool/cotton union closely set heavily milled, lightly raised and closely sheared on the face. A thick, stout and very durable woollen fabric woven in an eight-leaf satin weave with a

warp face. It is napped, fulled thoroughly and shorn, the face being finished very smooth. Used for overcoats, riding breeches, etc. Summer buckskin is made of hard spun worsted yarn often mixed with silk. A distinction is made between summer and winter buckskin depending in the fabric weight (the latter is often produced as double fabric).

(2) A white or pinkish beige leather which originally came from the elk or deer, but is now also obtained from sheep. It is strong but supple. Used for clothes, shoes, gloves, belts, etc.

(3) A heavy satin weave fabric, often of fine merino wool with a smooth face.

Buckskin weave: An eight-leaf warp satin weave, each warp crossing over six picks and carried under two picks.

Bud green: A yellowish-green colour.

Buff: A pale yellowish-brown colour; a light yellow; of the colour of buff leather which having regard to its proximity to human skin colour which gave rise to the phrase 'in the buff' meaning 'naked'. Also 'buff-coloured'.

Buffalo checks: A bold checks pattern with bocks of two or three contrasts in colours. Often red and black in twill weave

Buffalo cloth: Heavy twilled woollen over coating with a long nap.

Buffalo wool: Very fine wool, growing among the coarse hair on the buffalo. Used for fine felt hats, shawls, etc. It is available in small quantities now.

Buffer: A general term for a solution containing an acid reacting salt and a base or an alkaline reacting salt and an acid. In chemistry, a compound that resists change in pH when moderate amounts of acid or base are added to a solution of it. pH of such solutions is not changed significantly; it changes on the dilution or on addition of H+ or OH- (acids or bases). Buffers help to keep the pH of a dye-bath from changing significantly as the process progresses. Sodium acetate in such buffer.

Buffer solution: See **Buffer**.

Buffline: A trousering of linen and cotton.

Buffinei: A coarse English woollen fabric that existed in the 16th and 17th centuries and was used for clothing.

Buggy: A lining from the neck down across the back of an otherwise unlined coat.

Bugis: Fine and plain woven cotton fabric used for scarfs in East India. It has a checked or striped border along one selvage only.

Build up: A term applied to substantivity of dye for a textile material. It refers to the ability of a dye to produce deep shades.

Builders: Substances which increase the effectiveness of soaps or detergents by acting as softeners (water softeners) or sequestering or buffering agents. Builders are generally salts such as borates, silicates, phosphates, sodium chloride, sodium sulphate, etc. Sodium metasilicate (Na_2SiO_3. $5H_20$) also acts as a detergent and buffer and assists other chemicals to penetrate into the lignin mass of cellulose materials. In general, the function of the builders is to drive the soap from water phase to fabric/water interface and consequently increase the concentration of soap on the fabric. It is inexpensive, but its addition in the scouring bath increases the ash content of cotton.

Bukhra carpets: Extremely fine-hand knotted carpets made chiefly by nomads of the Turkoman tribe who live on the Trans-Caspian steppes. The motifs used in Bukhara carpets are by far and away from those used in Oriental carpets. It is an octagonal motif with slightly rounded angles, having blue, black or sometimes green with red and orange. The ground and border colours are always red with wide variations from violet to orange.

Build up behaviour of dyes: The capacity of a particular dye to form deep shades. The comparison of different dyes can be done by studying the graph showing the depth against time in a standard dyeing procedure. See **Build up**.

Bulac: A Philippine species of cotton; used for cordage.

Bulbul: Fine cotton muslin made in India.

Bulgarian embroidery: These are made in various bright coloured silks, cottons and gold or silver thread over a coarse, undressed black or white muslin and it is alike on both sides.

Bulk density: Apparent mass per unit volume of the fabric layer.

Bulk development: Any of various relaxation treatments to produce maximum bulk in textured or latent crimp yarns or in fabrics made there from. The essential conditions are heat, lubrication, movement and the absence of tension. Bulk development may be accomplished during wet-processing or may be a separate operation such as hot-air tumbling, steam-injection tumbling or dry cleaning.

Bulk sample: In the sampling of bulk material: One or more portions which (1) are taken from material that does not consist of separately identifiable units and (2) can be identified after sampling as separate or composited units.

Bulk shrinkage: A measure of potential stretch and power of stretch yarns or a measure of textured-set yarns.

Bulk yarn: A yarn that has been prepared by mechanical, physical or chemical treatment in such a way as to have greater covering power or apparent volume than that of a conventional yarn of equal linear density and of the same basic material with normal twist.

Note 1: Staple yarn – The increased bulk may be obtained by the use of bi-component fibres and/or by blending together during yarn spinning, fibres of high and low potential shrinkage. Example, high bulk acrylic yarns. During subsequent hot/or cold wet-processing, the greater contraction of high shrinkage fibres causes the yarn to buckle; thus increasing the bulkiness of the yarn.

Note 2: In case of continuous filament yarn, the bulk may be obtained by texturing the yarn.

Bulked yarn: A yarn that has been finished to have a noticeably greater bulk. This treatment can be mechanical, physical or chemical.See also **Textured yarn**.

Bulky yarn: A yarn that has a greater apparent density than its real density, i.e. the yarn has a diameter larger than that indicated by the count, in comparison to yarn of a similar fibre type.

Bull's wool: Coarse and low grade wools are sometimes termed as Bulls wool.

Bullion: Originally gold or silver lace, also thick gold wire braid for uniforms.

Bullion knot: Round spots made by laying down the metal or silk thread in small flat coils, used for ground in embroideries.

Bullion lace: Made of gold or silver thread.

Bulobulo: A coarse Philippine fibre; used for cordage.

Bump grey: A cloth which is purchased to be used as back grey.

Bump seam: A printing fault characterized by a light coloured width-wise stitching mark, caused by stitching the ends of the bump grey.

Bump top; Bumped top: A package made by press packing the layers of horizontally coiled sliver.

Bun ochra: Fine, white and strong bast fibre of the Caesar weed in India; used for twine and bags.

Buna rubbers: Synthetic dye developed in 1910 and manufactured by polymerization of butadiene with finely divided sodium as catalyst.

Bunch (Yarn): A length of yarn initially wound, with a restricted traverse, on to the base of a pirn which serves as a supply of a weft yarn in an automatic shuttle loom from the time the need for weft.

Bunch: Contains 130,000 yards of linen yarn.

Bunch: A defect in the yarn, characterized by a segment not over 6mm in length that shows an abrupt increase in diameter caused by more fibres matted at that place.

Bundle: Linen yarn measure, equal to 60,000 yards and weighing 10 pounds.

Bundle: Handkerchief of linen and also cotton, made in England with plaid patterns in dark-blue colour.

Buntal fibre: It is obtained from the stalks of the unopened leaves of the Bun palm in the Philippines; it is a very light fibre and is used for hat braids.

Bunte salt dyes: A special group of sulphur dyes which due to transformation of the mercapto groups into thiosulphato groups are converted into a soluble form, which has no affinity for cellulose. However, the addition of barium hydrosulphide during dyeing causes a gradual reverse transformation to take place into a form having affinity for cellulose.

Bunting: A soft, flimsy, loose-textured, plain open weave cotton or woollen cloth most frequently used in ceremonial flags; it resembles scrim. Cheaper short-life flags are made from cotton bunting, fabric that resembles Cheese cloth. Usually dyed in plain bright colours as required in flags; colours may not be even fixed sometimes. Even though bunting was originally made from cotton or worsted yarns, but today's flags are made primarily from nylon or acrylic fibres. It is not used for clothing.

Burgundy: The reddish-purple colour of Burgundy wine – less blue than **Bordeaux**. Hence 'Burgundy red'.

Burette: (1) Fabric of southern Italy with warp of Bologna silk, filling tram silk; (2) Stiff, transparent linen; used in Italy for drawn work.

Burberry: (1) Light-weight mercerized and water-proofed cotton fabric, with fine warp ribs, used for raincoats; (2) Fancy and twilled woollen cheviot suiting.

Burda: Arabic name for black and white warp striped fabrics used for garments in North Africa.

Burdalisander: Medieval silk fabric in various coloured stripes and believed to originate from northern Africa. See **Alexander**.

Burden stitch: Used in embroideries to reproduce flesh. The silk threads are laid down evenly and are caught in even distances.

Bureau of Indian Standards: The Bureau of Indian Standards (BIS), the national standards body of India, is involved in the development of technical standards (popularly known as Indian Standards), product quality

and management system certifications and consumer affairs. Apart from setting standards for textiles, the organization sets standards for other major industries in the country. It resolves to be the leader in all matters concerning standardization, certification and quality.

Buried end carpet: See **Under carpet**.

Buried pile design: A design formed by high-low-pile tufting with alternate needles threaded with difficult colours so that the high pile forms an area of one colour overlying the low (buried) pile of different colour.

Buried pile yarn (for coated pile yarn floor covering): After shearing and removal of the tuft legs some portion of the pile tuft elements are remained in the Pile yarn floor coverings. These are called Buried pile yarn.

Burel coarse: Brown coloured English woollen fabric used for clothing, etc., by the poorer classes in the 13th and 14th centuries. Now it is obsolete.

Burgos: A calico, dyed blue and printed in fancy colours; made once in India.

Buri raffia: A finer and weaker fibre than raffia that is obtained from the unopened leaves of the Buri palm in the Philippines and is used for coarse bagging.

Buring crane: An all-worsted English fabric of the 18th century.

Burity: Fine and lustrous leaf fibre, obtained from the Muriti palm of Brazil; used for ordage, hats and baskets.

Burl: (1) A wool trade term for an imperfection either (1) a small knot or lumps in a fabric or (2) a small cellulosic or synthetic fibre impurities in a fabric.

(2) To remove an imperfection.

Burlap: A coarse, heavy, plain weave fabric constructed from singles yarn of jute. The name originally meant a cleaning cloth, which implies hard-wear. Used for bags, upholstery lining, in curtains and draperies.

Burling: (1) The process of removing loose threads and knots from fabrics with a type of tweezers called a burling iron.

(2) The process of correcting loose tufts and replacing missing tufts following carpet construction.

Burly wood: A tan colour – one of the colours in the **X11 Colour Set**. Hex code #DEB887.

Burmese ruby: A pinkish-red colour.

Burn: To undergo combustion.

Burned area: The area of a material that has been destroyed by combustion or pyrolysis under specified conditions. See also **Damaged area**.

Burning behaviour of textiles: Pyrolysis is the destruction into breakdown products by heat, and is the first stage of every burning process. Not only does the fabric itself burn but so too do its pyrolysis products and this determines the burning behaviour.

Burning rate: The speed at which a fabric burns. It can be expressed as the amount of fabric affected per unit time, in terms of distance or area travelled by the flame, afterglow, or char.

Burning time: See **After-burn time**.

Burn-out: A brocade-like pattern effect created on the fabric through the application of a chemical, instead of colour, during the burn-out printing process (Sulphuric acid, mixed into a colourless print paste, is the most common chemical used). Many simulated eyelet effects can be created using this method. In these instances, the chemical destroys the fibre and creates a hole in the fabric in a specific design, where the chemical comes in contact with the fabric. The fabric is then over-printed with a simulated embroidery stitch to create the eyelet effect.

However, burn-out effects can also be created on velvets made of blended fibres in which the ground fabric is of one fibre like polyester, and the pile may be of a cellulosic fibre like rayon or acetate. In this case, when the chemical is printed in a certain pattern, it destroys the pile in those areas where the chemical comes in contact with the fabric, but leave the ground fabric unharmed.

Burn-out lace: See **Burn-out styles**.

Burn-out paste: In burnt-out printing, a paste containing chemicals capable of dissolving or destroying one of the fibre components in a blended fabric is used. Fabrics resembling lace have been produced in this way for shirting and other fashion articles. For e.g., sodium dihydrogen phosphate is a virtually universal burn-out agent for fabrics containing fibre mixtures with polyester. Sodium hydroxide solution is used to burn out the wool/silk components in mixtures with polyester or polyamide; protein fibres are broken down hydrolytically under conditions of high pH which results in their complete removal. For ready reference, Aluminium sulphate can dissolve cotton, viscose, linen, while polyester, polyamide, triacetate, acetate, linen, wool and silk are resistant to it. Sodium hydrogen phosphate will destroy cotton, linen, viscose, polyamide, acetate, triacetate while wool, and silk mare resistant to it. Bezoic peroxide will destroy acetate and triacetate while cotton, viscose, linen, polyester, polyamide, wool and silk are resistant to it. Caustic soda

dissolves wool and silk while cotton, viscose, linen, acetate, triacetate, polyester, polyamide, etc., are resistant to it.

Burn-out printing (de'vore printing): It is the process of printing a design on flat fabrics composed of different fibre types with a paste containing a chemical capable of dissolving or destroying one of the fibre components. Fabric resembling lace have been produced in this way for shirting and other fashion articles.

Burn-out styles (devoré styles, à jour effects, chemical embroidery): These styles are produced on fabrics composed of different types of fibres by the (local) action of chemicals capable of destroying a selected fibre followed by its subsequent removal. The effects include all-over or printed open-work designs on blend fabrics or burn out lace produced by machine embroidery on a subsequently burnt-out base fabric of a different fibre type and burn-out velvet effects. For e.g., a treatment in cold 70% sulphuric acid can be used to dissolve-out the cotton in polyester/cotton fabrics (with no effect on the polyester). See also **Burt-out pastes**.

Burnt: A yellowish-brown colour; hence, 'burnt-coloured'.

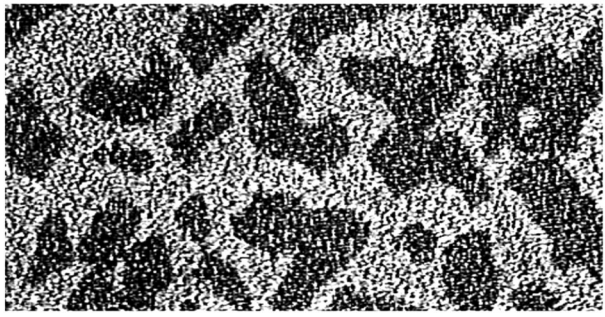
Burnt-almond: A light brown colour.

Burnt gas fumes, Colour fastness to: Colour fastness to atmospheric contaminants; burnt gas fumes.

Burnt ochre: Light-brown pigment resulting from treatment of ochre by fire or having the appearance of having been scorched.

Burnt orange: A reddish-orange colour.

Burnt-out: Patterned or plain woven, blended, usually polyester/cotton fabric to which acid is applied at selected areas to remove or burn-out some fibre (cotton). The fibres are mixed so as only certain parts of the design are burnt-out and they become transparent, while the rest remains opaque creating a very attractive appearance. Used for blouses, dresses and curtains.



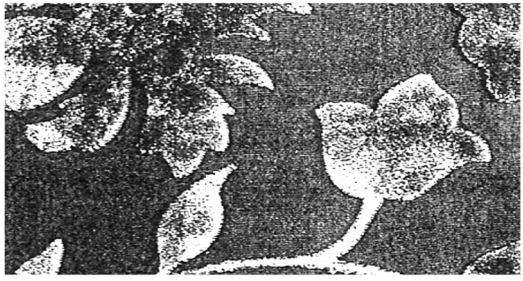
Burnt-out embroidery: A machine embroidery technique producing fabric comprising embroidered motifs. This embroidery technique creates simulated true lace. Embroidery is applied to a base material (paper or linen cambric). The embroidered motifs are linked by the required number of cross-over stitches so that the subsequent burning-out of the base material produces lace material (or motifs) in the form of piece goods.

Burnt-out velvet: Velvet fabric with designs produced by fibre selective chemical burn-out action (Veloures de'vorent).

Burnt sienna: Dark reddish-brown pigment resulting from treatment of sienna by fire or having the appearance of having been scorched. Also referred to as 'burnt terra di Sienna'.

Burnt sugar caramel: A deep yellowish-brown.

Burnt velvet: Velvet with a short, dense and tightly bound pile on which a pattern is created by selective removal of the pile, allowing the ground weave to show through. Used in dresses, blouses and for formal wear for ladies**.**



Burnt velvet

Burnt umber: Reddish-brown pigment resulting from the treatment of umber by fire or roasting.

Burr: A device that assists in loop formation on circular-knitting machines equipped with spring needles.

Burr-wool waste: Mass removed by the burr guard of cads or burr pickers having a very short fibre and full of burrs or seeds.

Burrah: A plain woven fabric used by African natives for garments characterized by the heavy colours. It is either dark blue or made in narrow-blue and black stripes with border stripes in other colours and a centre stripe in red or yellow. There are also headings at both ends of the piece.

Burring: Process of removing the burrs from the fleece, by means of hooks.

Burry wool: The fibres of which are entangled with burrs.

Burry blanket: A plain woven and slightly napped blanket.

Burst stitch damage: Faults occurring in making-up (significantly more serious in the case of solvent cleaned fabric) especially with wool and wool/ synthetic double jersey fabrics. Cause: fibre puncturing by needle points during sewing, stitches bursting due to the use of needle sizes unsuitable for the fabric density, or synthetic fibre yarn melting.

Bustian: Medieval worsted fabric used for dresses, made with three treadles.

Bursting strength: (1) The ability of a material to resist rupture by pressure.

(2) The force required to rupture a fabric by distending it with a force applied at right angles to the plane of the fabric under specified condition. Bursting strength is a measure widely used for knit fabrics, non-woven fabrics and felts where the constructions do not lend themselves to tensile tests. The two basic types of bursting test methods are the inflated diaphragm method and hydraulic bursting method.

(3) Defined as the multi-directional resistance to rupture of a circular fabric specimen. Testing of flat materials (textile fabrics, paper, films, etc.) is carried out under two-dimensional stress by applying a load perpendicular to the test surface.

Business plan: A plan for the proposed business which includes projected sales.

Bust: See **Bust girth**.

Bust girth: The circumference of the body over the fullest part of the breasts and parallel to the floor.

Bust point to bust point: The distance across the front from the apex of one breast to the apex of the other.

Bustle: Wire or whale-bone frame over which the rear of the skirt was gathered. Also see **'Cule de Paris'**.

Buta: Means literally, a plant. A floral motif, derived generally from Persian sources, much used in Indian textile design and traditionally rendered as a flowering plant with a curling bud at the top. The motif is also sometimes reduced to a floral pattern designed within the form of the plant.

Butadiene: It represents the simplest example of the Dienes: CH_2=CH–CH=CH_2. Butadiene is the starting material for the manufacture of butadiene rubbers (Buna rubbers).

Butadiene-acrylonitrile rubber: Synthetic rubber consisting of a copolymer of Butadiene with Acrylonitrile: -CH_2-CH=CH-CH_2-CH_2-CH-CH_2-CH=CH-CN.

Butane tetracarboxylic acid (BTCA): BTCA reacts with cellulose hydroxyls to form ester cross-links. The reactions of carboxylic acids with cellulose are rather old knowledge and have been practiced commercially for many years to make a variety of fibres and plastics from wood pulp. Using dibasic acids to cross-link cotton is also old technology. Problems with this in the past were excessive strength loss, poorer DP performance and poor durability to laundering. Certain phosphorous based salts were effective catalyst for the reaction. Because this too is classified as non-formaldehyde, there was a great deal of interest in this approach. The exact mechanism of the reaction is not known, nor is it known why the cross-linked products are so much more resistant to hydrolysis than are other cellulose esters.

Butcher rayon: This fabric used to be called Butcher linen, but it no longer contains linen yarns. See **Butcher linen**.

Butcher's linen: A plain weave, stiff and heavy fabric with thick and thin yarns in both the warp and the filling. The fabric was originally made of linen but is now duplicated in 100% polyester or a variety of blends such as polyester/rayon or polyester/cotton. Used for overalls and protective coats.

Buti: A diminutive of buta, very commonly used in Indian textile design.

Buts: In the Bible, denotes fine linen.

Butt: To level the root ends of flax straw at any stage of processing by vibrating it upright on a flat surface, either by hand or mechanically.

Butt seam sewing machine: Serves to compensate differences in elongation (= smooth seam), chiefly used in front of the entry of stenters, calendars, padders, raising and shearing machines, and also for stitching fabric into a tube for washing and dyeing. The seam is flat and can be undone by simply pulling the thread.

Butter muslin: A cheap open-weave cotton cloth, very soft. Used in the production of diary-products, for straining jelly, etc., but it is also the perfect cloth with which to press. It will shrink when first dampened for use. It is useful to have a couple of pieces, each one metre in length, so that one can be kept dry, while the other is damp.

Buttercup yellow: The pale yellow of buttercup petals.

Butterfly valve: A valve in a pipe that has a disc the size of the internal diameter of the pipe. When the disc is in the same direction as the flow the valve is fully open. The disc can be turned through 90° to shut off the flow.

Butter-nut: (1) The brownish-grey colour of the butter-nut.

(2) The coarse brown twilled homes-pun cloth woven of wool prior to the Civil War—coloured brown with dye from the butter-nut or walnut tree; used for men's wear and for decorative purposes.

Butterscotch: A yellowish-brown colour.

Button: (1) It is a porcelain material used as a slub catcher in reeling devises. It removes excess water and helps in forming a smooth circular raw silk. It also helps in improving cleanness of raw silk by preventing the defects to pass along with the yarn. Buttons with different orifice die are used for different deniers of raw silk.

(2) Lumps of fibres collected on the warp during weaving.

(3) See **Buttons**.

Button hole (eyelet): Formed by a contoured patch of zig-zag stitching, followed by a cut – a portion of which is circular. Eyelet buttonholes are usually used on heavy fabrics and/or with large buttons. A gimp or cord is usually contained within the stitches to provide a reinforcement along the edge of the hole.

Button hole (straight): Formed by two pairs of straight, parallel rows of zig-zag stitching, followed by a single, straight knife cut. Each end of the row of stitching is secured by a bartack.

Button-hole stitch: A complex machine stitch pattern made by coordinated motions of needle feed, appearing as very close stitches forming a narrow rectangle of stitching that is usually composed of four stitch segments, one on side and on each of the two ends of the rectangle.

Button-hole stitch bars: Embroidery stitches. Method: Bars are used in cut-work and Richelieu Work. Make a row of running stitches between the double lines of the design as a padding for the button-hole stitch where a single line bar occurs. Take a thread across the space and back, securing with a small stitch and button-hole stitch closely over the loose threads without picking up any of the fabric. Button side stitch round the shape, keeping the looped edge of the stitch to the inside, then cut away the fabric from behind the bar and round the inside of the shape. Where a double line or a broad bar is required between shapes or sometimes for stems of flowers, when the fabric is to be cut away on each side, make a row of running stitches along the centre, then button-hole stitch along one side, spacing the stitches slightly. Button-hole stitch along the other side into the spaces left by the first row. The fabric is then cut away close to the button-hole stitch, leaving a strong broad bar

Button-hole stitch with picot: Work as for ordinary button-hole stitch until a picot is required, then hold the thread down with the left thumb and twist

the needle three times round the thread. Still holding the thread securely, pull the working thread until the twisted threads are close to the button-hole stitch, then make a button-hole stitch into the last loop.

Button-hole twist: Thick, loose cotton thread, made of 24 strands; used to strengthen the edges of buttonholes.

Button hole (built-in): These are made with a combination of zig-zag stitching and bar tacks. Most zig-zag machines have a built-in mechanism that stitches this type of buttonhole in two or four steps. The four steps are: zig-zag forward, bar tack, zig-zag in reverse, bar tack. A two-step buttonhole combines a forward or backward motion with a bar tack. Consult your machine manual for specific directions, because each machine varies. The advantage of this buttonhole is that it allows you to adjust the density of the zig-zag to suit the fabric and size of the buttonhole. Use spaced zig-zag stitches on bulky or loosely woven fabrics, closer stitches on sheer or delicate fabrics.

Button hole (over-edge): Over-edge button holes are an adaptation of the built-in or one-step buttonhole. This buttonhole is stitched with a narrow zig-zag, cut open and then stitched a second time so that the cut edge is over-edged with zig-zag stitches. The over-edge buttonhole looks like a hand-worked buttonhole. It is a good choice when the interfacing is not a close colour match to the fashion fabric.

Button hole (one-step): Buttonholes are stitched all in one step, using a special foot and a built-in stitch available on some machines. They can be stitched with a standard-width zig-zag, or a narrow zig-zag for light-weight fabrics. The button is placed in a carrier in back of the attachment and guides the stitching, so that the buttonhole fits the button perfectly. A lever near the needle is pulled down and stops the forward motion of the machine when the buttonhole reaches the correct length. All buttonholes are of uniform length, so placement is the only marking necessary.

Button holes (universal attachment): These are made with an attachment which will fit any machine, including a straight-stitch machine. The attachment has a *template* which determines the size of the buttonhole. This method also offers the advantage of uniform button-hole length and adjustable zig-zag width. The *key-hole* buttonhole, used on tailored garments or heavy fabrics, can be made using this attachment. The keyhole at one end of the buttonhole provides space for the shank. If buttonholes do not have to be re-spaced because of pattern alterations, make the buttonholes after attaching and finishing the facings but before joining to another garment section. This way there is less bulk and weight to handle at the machine.

Buttons: A knob, disc, or similar object which when forced through a narrow opening or button hole, fastens one part of a garment or other flexible substrate to other. Specified by design, size, colour, and type such as brass, melamine, or pearl, buttons are either shanked (attached by passing threads through the shank's eye) or holed (attached by passing threads through the button's holes).

Butyl rubber (isobutylene-isoprene rubber): Synthetic rubber obtained by copolymerizing isobutylene and isoprene. Properties: good fabric adhesion and abrasion resistance.

Butyrolactam (2-pyrrolidone): A monomer for the manufacture of polyamide-4, starting material for Polyvinyl pyrrolidone (dye-stripping agents, adhesives, binders).

Buyers and selectors: The people responsible for deciding which styles are going to be available as a part of the product range.

Buz: (1) A plain woven grey cotton fabric made in Central Asia; used for shirts and drawers, made 11 inches wide; (2)As given in the Bible, it means 'byssus'.

Bw: Cotton.

Byssus silk: (1) Old Greek name for fine sheer linen fabric of white or yellowish colour, woven in Egypt; (2) Long and silky hair-like beard of some sea mussels; used for gloves and stockings in southern Italy. See **Mussel silk**.

Byzance stitch: In canvas embroidery, producing a close zig-zag pattern.

Byzantine carpet: Similar to Brussels carpet with the addition of metal threads at intervals.

Byzantine embroidery: Applique embroidery, heavy worsted or floss silk yarn being laid and sewn on to leather or other thick ground, often ornamented with pieces of cloth.

C

C: Abbreviation for Celcius, Carbon.

c* : Abbreviation for chromaticity.

CA: Acetate fibres, Acetate fibres deacetylated (saponified).

Ca^+ : Calcium.

Caaporopy: Produced from a species of plant from the Urtica family this fibre is fine, flax-like, used by the native people to make ropes, etc. The plant is usually seen in Paraguay.

Caballeros: Name in French for a spanish raw merino wool, used in large quantities in France.

Cabbage green: The green of the cabbage leaf.

Cabesa: Spanish raw wool from Estramadura, Spain.

Cabinet steamer: A special type of steamer used in particular processes as in the steaming of vigourex printing or tops printing and in pleating process. The machines have boxes or trays/drawers which can take steam pressure upto 1.25 – 1.5 bar. In case of Pleating the fabric is hung inside the boxes for steaming.

Cabinet: A basic part of the manufactured-fibre spinning machine where, in dry spinning, the filaments become solidified by solvent evaporation and, in melt spinning, the filaments are solidified by cooling.

Cable: (1) The heaviest ropes, over 10 inches in circumference, made usually of hemp, coir, the yarn, strand and hawser (usually three in number), being given alternately a right hand and left hand twist before made into cables; (2) A variety of corduroy, having broad cords.

Cable- laid rope: Formed by three ropes of three-strand yarn, twisted into one, alternately to the right and left hand.

Cable net: It is made of heavy cotton yarn with large mesh; used in England for draping and curtains in olden days.

Cable Stitch: (1) An embroidery stitch.This stitch is worked from left to right, bring the thread through on the line of the design. Insert the needle a little to the right on the line and bring the needle out to the left midway

between the length of the stitch, with the thread below the needle. Work the next stitch in same way but with the thread above the needle. Continue in this way, alternating the position of the thread. This stitch may also be worked on even weave fabric. (2) A knit effect produced by crossing a group of stitches over a neighboring stitch group.

Cable thread: Sewing thread, composed of three ply threads, which are twisted together against the original twist.

Cable twist: A construction of thread, yarn, cord, or rope in which each successive twist is in the direction opposite the preceding twists; i.e., and S/Z/S or Z/S/Z construction.

Cable webbing: Twilled webbing, woven with heavy round thread.

Cabled yarn: A yarn formed by twisting together two or more plied yarns.

Cablet: A trade term for cables measuring smaller circumference.

Cabling: The process of doubling cotton strands and twisting them alternately to right and left hand direction in making cotton thread.

Cabo negro: A dark, straight, smooth and glossy fibre, similar to horsehair, yielded by the leaves of a palm in the Philippines; used for ship cordage in olden days.

Cabot: General term for coarse grey or bleached, heavily sized cotton sheeting in the Balkan States and Asiatic Turkey.

Cabuja or Cabulla: Central American and West Indian name for the Mauritius hemp

Cabuya: Hemp growing in Colombia, Peru and Central America. Yields very strong fibre for ropes, bags, etc.

Cacao brown: The brown of the cacao bean used for making cocoa and chocolate.

Caceres: Spanish raw wool of medium quality.

Cacharado: A plain woven linen fabric from Spain.

Cachemire shawl: The finest French make is made with woven coloured figures on a foundation of fine cachemire wool and organzine warp and very fine and close Cachemire filling. Genuine cashemire shawl is made in one colour, and then embroidered.

Cachemirette: Originally from England; a trousering and coating, made of cotton or silk warp and woollen filling; occasionally it is fulled. It is woven in twill and given a clear face, while the back is napped.

Cactus green: The green of the cactus.

CAD in textile printing: Colour management in a print shop consists of the engraving section and the colouration section. A cad system (computer aided designing) with the help of a scanner takes the design which has to be modified in terms of shape and colour to enable on screen working.

Cadaverous: Pale.

Caddis: (1) Worsted lace and ribbon; (2) Stout and very durable twilled woollen fabric of various colours, used in France.

Cadene: Coarse and durable rug made in Asia. Has a long pile and is sewn together of narrow strips.

Cadet blue: A bluish grey or strong blue colour; sometimes referred to as 'cadet grey'.

Cadet cloth: Bluish grey, or other Military specific colours, strong, fulled and shorn woollen fabric; used for uniforms in military schools.

Cadilla: Light brown coloured, very long, lustrous, strong bast fibre, yielded by the Urena plant in South America; used for bags, ropes.

Cadillon: French twilled woollen cloth.

Cadmium green: Made by mixing cadmium yellow and viridian.

Cadmium lemon: A bright greenish yellow.

Cadmium lithopone: A pale yellow.

Cadmium orange: A bright orange made from cadmium sulphide. See **greenockite**.

Cadmium red: A bright red primary colour made from a mixture of cadmium sulphide and cadmium selenide and first marketed in 1910.

Cadmium vermilion: A bright red.

Cadmium yellow: A fine yellow in many varieties first made in 1820 from cadmium sulphide and used by artists extensively in the 19th century. Sometimes referred to 'aurora yellow'. Also 'cadmium lemon yellow' which has a more orangy hue.

Cadmopone yellow: A pale yellow also called cadmium lithopone

Cadis: (1) All wool, lightweight French serge, made about 22 inches wide, obsolete; (2) Very fine all-wool French cloth, slightly fulled; obsolete. (3) Coarse twilled worsted fabric; used by the Scotch Highlanders.

Cadiz stitch: In needle-point laces, consists of successive rows of buttonhole stitches.

Cadoxen solution: A solution for the determination of fluorescent Brightening agent on cellulosic material and determination of cellulosic material in synthetic fibre yarns especially cellulose/ polyvinyl alcohol mixtures. It contains 5% Cadmium 28-30% ethylene diammine and 0.5 moles caustic.

Caen: A grade of French serge made of wool.

Caesi- (L): Bluish-grey.

Café: Coffee colour.

café au lait: The colour produced by mixing milk with coffee.

Cafe con leche: In Paraguay white ponchos with brown stripes.

Caffa: (1) A 16th century English silk fabric, the patterns of which were either woven or printed with hand blocks; (2) An Indian fancy calico.

Caffard: (1) Satin made in various coloured stripes, the warp being of silk and the filling of silk or wool; obsolete; (2) French suiting, made of all-wool or wool and linen; used by the country people.

Caiana: Sort of raw cotton from Brazil.

Cain-coloured: Red or reddish yellow possibly in reference to the blood of Able shed by his brother Cain; having red hair; Shakespeare's *Merry Wives of Windsor* Act 1 Scene 4.

Cajun: The fibre produced from the leaves of the plant Furcraea cubesis. It is a strong leaf fibre similsr to sisal. The plant is found in central America.

Cake, in effluent treatment: The accumulation of solids in the medium, on the surface of the percolator on the septum.

Cake Dyeing: Dyeing of synthetic, viscose, acetate, triacetate filaments on Pack system dyeing machines with cylindrical material carriers or creel system dye tubes. Cake dyed material is mostly used for multicoloured products since the dye levelness through dyeing is a problem by this method.

Cake space, in effluent treatment: The volumetric space available in a filter to support the formation of cake.

Caked: Flaw in the fabric, consisting of hardened portions of size.

Calabria: Italian cotton, having a medium long, fairly strong but irregular staple of dull white colour; contains much leaf.

Caladaris: East Indian calico made with black or red stripes.

Calais lace: See **Leavers lace / Calais lace.**

Calcareous: Lime coloured.

Calcined: Synonym for anhydrous. Salts are described as 'calc' (e.g. Sodium sulphate, sodium carbonate) have lost their water content through heating or roasting (calcining).during calcination.

Calcium hardness: See **Water hardness salts.** All hardness is usually expressed in total calcium hardness.

Calcium hypochlorite: (chlorinated lime, bleaching lime, bleaching powder) $Ca(OCl)_2$, salt of the hypochlorous acid (HOCl) MW. 127. White loose powder having typical chlorine smell, vividly attracts carbon dioxide from the air, (under decomposition, runs into a greasy mass; store dry, cool and air tight). Good calcium hypochlorite contains 75.8% active chlorine. Used for bleaching cellulosic materials, chlorination of wool etc.

Calcium Hydroxide: **Slaked lime, $Ca(OH)_2$.** Used in water treatment (lime-soda process) Not very stable. It looses on molecule of water forms **Calcium Oxide.** CaO.

Calcium oxide: Also called Quick lime, Caustic lime, Unslaked lime. It absorbs CO_2 readily from atmosphere to form cal. Carbonate. With water, with intense heating (up to approx. 450ºC), forms highly alkaline calcium hydroxide $Ca(OH)_2$:

$$CaO + H_2O \rightarrow Ca(OH)_2 + 63.69 \text{ kJ.}$$

However, calcium oxide is only slightly water-soluble (at 15ºC 1.3 grammes per litre, 100ºC 0.65 grammes per litre) to form "lime water"; under the action of water, "slaked lime" results (calcium hydroxide); the watery white, milky suspension is called "milk of lime". Used for kiering agents, boiling agents (cotton), vat dyeing (zinc-lime vat), calcium mordant in dyeing (cotton); water purification (limesoda process); construction engineering, furnace lining, reference value for calcium hardness etc.

Calendering: Calendering is a process where fabric is compressed by passing it between two or more rolls under controlled conditions of time, temperature and pressure. A calendar is a machine consisting of two or more massive rolls which are compressed by means of hydraulic cylinders applying pressure at the journals. One roll is considered the pattern roll and is responsible for the finished appearance of the fabric while the other roll is called a bowl and serves as the pressure back-up for the pattern roll and also serves to transports the fabric through the machine. There are many types of calendars, each designed to impart specific effects to cloth. The composition of the rolls, number of passes, temperature controls, moisture control and pressure can vary to fit the desired effect. For example, the pattern roll can be engraved and serve to emboss a three dimensional pattern into the fabric. The engravings can be shallow or deep depending on the desired effect. The pattern roll can be

smooth, made of steel or nylon to give the fabric a high lustre and sheen. The backing bowls can be made from corn husks, kraft paper, hard or soft rubber and deform to receive the pressure of the pattern roll. In calendaring, the yarns are flattened and become more oval in shape. This causes them to spread in two dimensions and closes up the fabric structure, leaving less open spaces between the yarn crossovers. In the process, the fabric becomes thinner and more lustrous. The reason fabrics are calendared is to improve aesthetics. The major fabric changes are: (i) Reduced fabric thickness. (ii) Increased fabric lustre, (iii) Increased fabric cover, (iv) Smooth silky surface feel, (v) Reduced air porosity and (vi) Reduced.

Calender: A multi roll (2-16 rollers or bowls) machine in which heavy bowls rotate in contact under mechanical pressure, for calendaring operation. The principle of operation is based on at least two adjacent calendar bowls one or more being made of metal (steel, iron) suface of which is ground, polished, chromium plated or engraved can be heated if required and the other one being a resilient bowl. Calendering effect depends on various factors like number of bowls, bowl material, bowl pressure (50-100 tonnes), metal bowl temperature (upto 300'C)rotastional speed and degree of friction, fabric stage (dry, damp, wet etc.) number of passages etc. NOTE: The bowls may be unheated or one may be a thick-walled steel shell heated internally. All bowls may rotate at the same surface speed, or one highly polished and heated bowl may rotate at a higher surface speed than the rest. In certain specialised machines, e.g. for knitted goods, two adjacent bowls may be heated, or, in the case of a laundry calender, one bowl works against a steam chest shaped to the curvature of the bowl. (See also **friction calendering**).

Calender bonding: A method of making thermally bonded nonwoven fabric in which calendar rollers are used to apply heat and pressure to a fibre web thuis causing bonding by softening or melting of the heat sensitive material.

Calender coating: Method used when coating the 4-roller calender with rubber, etc. To obtain good rubber coatings the rubber sheet is pulled into two rolls by calender rollers running at the same speed, and then on the last calender roller fabric is pressed onto the rubber sheet by means of a rubber roller.

Calender crease: Typical crease which appears on both sides of tubular knitted fabric which has been passed in the flat state through a calender. The calendar crease, like the ladder, can be used as an orienting line for slitting.

Calender, felt: A felt used in a sanforising machine which gives a sheen to the fabric after the sanforising operation. The felt usually runs over a large dia heated steel roll in between which the fabric is passed through to grt the

desirable feel/look to the fabric. There are independent felt calendars also available for specific purposes.

Calendering: A mechanical finishing process for fabrics to produce special effects, such as high lustre, glazing, moiré, smoothen, flattening and embossed effects. In this operation, the fabric is passed between heated rolls under pressure.

Calendering finish: See **Calendering.** A smooth finish obtained by passing the fabric between heavy bowls of a calender, which results in the fabric being flattened so as to close the interstices between the yarns.

Calendering roll: (1) The main cylinders on a calender. (2) Smooth or fluted rolls used on various fibre-processing machines such as pickers and cards to compress the lap or sliver as it passes between them.

Calf fur: A coarse fur with a sheen not often used in its natural state, but dyed and cut to imitate others furs, such as pony, leopard, orcelot etc.

Calf girth, In body measurements: The maximum circumference around the leg between the knee and ankle parallel to the floor.

Calf Leather: A very soft pliable leather of top quality. Used as the basis of good patent leather because it takes a high polish.

Calgon T: A trade name for sodium hexametaphosphate It is sodium hexametaphosphate without additives. Water softener products sold at retail under the Calgon name usually contain additives such as fragrances and surfactants.

Calibrate: To determine the characteristic of an instrument or tool and mark it at one or more places corresponding to the exact values of an established standard scale, for regular use.

Calibration: The act or process of calibrating ; the recorded relationship resulting in from calibrating.

Calibration cotton standards: Cotton standards taken from a blended bulk source on which fibre properties have been determined under the International Calibration Cotton Standards program.

Calibration curve: A measuring curve which is recorded for comparison with a reference curve.

Calibration dyeings, in colorimetry: Calibration dyeings are done in selected substrate by selected class of dye to feed the calibration measured using spectrophotometer, which in turn is the basis for the recipe formulation. Hence it is very important that the dyeings are as perfect as possible. These dyeings are done in either 6, 8 or more concentration as the software can

accept. E.g. for 6 concentration dyeing are 0.01, 0.05, 0.2,0.8, 1.5, 2 or 0.1, 0.5, 1.5, 3.5, 6.0,8.0 and in 8 concentration 0.005, 0.025, 0.1, 0.25, 0.5, 1.0, 1.5, 2.0 or 0.03, 0.2, 0.8, 2.0, 4.0, 6.0, 8.0, 10.0. Generally concentration should cover the usual concentrations the dyes are generally used. A blank dyeing is also made to measure and feed the data along with these calibration dyeings.

Calico: Cheap plain-weave cotton fabric often printed coarser than lawn. One of the oldest fabrics, it is named after Calicut, a place in Kerala, India where it was produced and exported. It is in the same grouping as Percale but coarser and poorer quality. Firmly woven and very strong.

Washes and wears well, used for night wear and, sheeting. Unbleached calico has the characteristic dreamish look of a natural fabric, with darker flecks of fibre in it. Used for under sheets , mattress covers, aprons, dresses, quilts etc.

California: Fancy English alpaca fabric in the 19th century.

California blanket: Originally made in San Francisco, made of fine wool, with a long soft nap.

Calimanco or Calmanco or Callimanco: A plain or striped stout worsted in England made in imitation of the camel hair cloth with single warp and finished with a high lustre made in the 19th century; used for petticoats and chair seats.

Calloose hemp: Extracted from the stem of Urtica plant grown in Sumatra, this fibre is strong and coarse, hence used for cordage.

Calmande: A wool fabric made in all wool structure or wool warp and silk filling and sometimes with wool mixed with silk or goats hair in the warp mainly for the figured Calamande, usually of satin weave but also made with rib effect with high gloss many were made of natural coloured wool, but also dyed or striped. Used for mens clothes, skirts, dresses etc. Originated in France or Denmark and is made in various widtrhs. It was made single or double faced. See also **Calimanco.**

Calmuc or Kalmuk: (1) Wool yielded by the Calmuc sheep in Central Asia; (2) Loose woven, twilled woollen made of loose twist yarn, fulled and finished with a long nap, used as winter dress goods.

Calorie (cal): The CGS unit of heat energy. This calorie (also called a gram calorie or small calorie) is the amount of heat required at a pressure of one atmosphere to raise the temperature of one gram of water by one degree Celsius. Unfortunately, this varies with the temperature of the water, so it is necessary to specify which degree Celsius is meant. A traditional choice was the degree from 14.5°C to 15.5°C; raising the temperature of water through this range requires 4.1858 joules, a quantity called the 15° calorie. Another choice produces the thermochemical calorie, equal to exactly 4.184 joules. More common today is the international steam table calorie, or IT calorie for short, defined by an international conference in 1956 to equal exactly 4.1868 joules, exactly 1.163 milliwatt hours, or about 0.003 968 32 British thermal units (Btu). The name of the unit comes from the Latin *calor*, heat.

Calorie (kcal or Cal): A common name for the MKS unit of heat energy. This unit is properly called the **kilocalorie**; it is also called the kilogram calorie or large calorie. It is often (but certainly not always!) distinguished from the small calorie by capitalizing its name and symbol. The large calorie, or rather kilocalorie, is the amount of heat required at a pressure of one atmosphere to raise the temperature of one kilogram of water by one degree Celsius. Since this is 1000 times as much water as mentioned in the definition of the small calorie, the kilocalorie equals 1000 small calories, 4.1868 kilojoules, 3.9683 Btu, or 1.163 watt hours. (These conversions assume the IT calorie is in use; see previous entry.) These are the "calories" that joggers are trying to get rid of, the ones we gain by eating. The use of the same term "calorie" for two different-size units is endlessly confusing, but we seem to be stuck with it.

Calorific value, heating value, CV: The amount of heat given off by a fuel when it burns completely. There are two values. The larger or gross CV is slightly too high because it includes heat from the steam, given up when the water formed in the burning is condensed. The lower or net CV gives a truer value of the heat that can be used. The calorific value of landfill gas is usually in the range 16 to 20 MJ/m^3. The calorific value of domestic solid waste varies from about 4 MJ/kg for the food fraction to 16 MJ/kg for paper and over 30 MJ/kg for plastics.

Calquiei: Indian silk taffeta made with double-and-twist or printed yarn.

Calorimetry: The process of measuring quantities of absorbed or evolved heat, often used to determine specific heat.

Calum couree, Kalamkari: An East Indian printed chintz. The fabric is usually printed with vegetable colours and hence limited colours. Predominantly brown and olive related colours will be more.

Cam: A rotating or sliding piece or projection used to impart timed or periodic motion to other parts of a machine. It is used chiefly as a controlling or timing element in machines rather than as part of a power transmission mechanism. Cams are particularly important in both knitting and weaving machinery.

Cam-locks, in knitting machine: The cam-locks are a cam system which gives the necessary working information to the individual needles; they include a fixed part, working as support, and movable cams, which can be divided into raising cams and lowering or knock-over cams. The different parts of the cams are chamfered; their profiles are curvilinear to make the needle move smoothly.

Cam lock slider, In Zipper: The portion or portions on the pull that extend through a window or windows to effect a locking action in cam lock sliders.

Cam, bolt in knitting: *C*an be caused to descend into the cam track to control the element butts or be withdrawn out of action so that the butts pass undisturbed across its face; it is mostly used on garment-length machines to produce changes of rib set-outs.

Cam, Counter in knitting: See **Cam, upthrow.**

Cam, guard: Cam guard are often placed on the opposite side of the cam-race to limit the movement of the butts and to prevent needles from falling out of track.

Cam, stitch in knitting*:* Controls the depth to which the needle descends, thus controlling the amount of yarn drawn into the needle loop; it also functions simultaneously as a knock-over cam.

Cam, raising in knitting: Causes the needles to be lifted to either tuck, clearing, loop transfer or needle transfer height, depending upon machine design.

Cam, swing in knitting: It is fulcrummed so that the butts will be unaffected when it is out of the track and it may also be swung into the track to raise the butts.

Cam, upthrow or counter: Takes the needles back to the rest position and allows the newly-formed loops to relax. The stitch cam is normally adjustable for different loop lengths and it may be attached to a slide together with the upthrow cam, so that the two are adjusted in unison.

Camayeux: Silk cloth of coloured warp and black filling, the latter alternately shot in single and double.

Camayeux effects: Light and dark effects in the same shade which are achieved at the same time in the same dye bath, on the same fibres with a different affinity for dyestuffs. This can be achieved on wool by using treated/ untreated wool to make yarn (e.g. chlorinated/ nonchlorinated wool; mordanted/premordanted wool) woven and knitted fabric followed by dyeing with selected chrome dyes. Chlorinated and premordanted wool has a much higher dye affinity than untreated wool thus producing light dark effect. Same way in silk using degummed yarn, mordanted yarn, etc.

Cambayes: Strong East Indian cotton fabric of coarse structure, finished to resemble linen.

Camblet: 18th and 19th century English and French, plain woven or twilled fabric, made with single or double warp of wool mixed with silk or goat's hair- It was woven in the gray and dyed in the piece; used for cloaks. Originally came from the Orient, where it was made of Angora hair. Compare with **Camlet.**

Camblettee: A 19th century pure worsted fabric in England.

Camboulas: Southern French fabric, made of ply cotton warp and woollen filling.

Cambr'e fabric: Very light, sheer, veiling-like linen used in Italy.

Cambreaine: French term for plain woven very fine cottons and sheer linens, similar to the cambric; originally imported from various parts of Asia.

Cambrian tweed: A rough woollen cloth made in the uplands of mid Wales, from the local hardy sheep. Plain weave, hope sack or herringbone weaves are the most usual and the yarns are either dyed, or more commonly left in their natural colours of white, grey and black and mixed together. Used for hard wearing cloths such as mens suits, sports jackets, Norfolk skirts, and jackets. The coarse yarn is made into rugs.

Cambric: Heavier than lawn, this is a fine, firm closely woven plain weave fabric finished with size to give a slight shine on the right side. At one time it could make for linen but is now cotton. Mainly in plain colours and bleached. Usually 30s hard twist yarns are used in the warp and filling. Used for childrens cloths, nightwear, blouses and handkerchiefs.

Cambric muslin: Fine cotton fabric, bleached and glazed, used for underwear.

Cambridge blue: The light blue Eton colour adopted, it is said, in haste in the 1836 annual Cambridge and Oxford varsity boat race by the Cambridge cox having forgotten his team's own colours. See **blue** (n).

Camel cloth: A term now used to describe any camel coloured clothing, with a soft feel and slight pile. May be wool, wool/acrylic, or other mixtures.

They are cheap imitations fof real camel hair, but some are very good quality and expensive. Sometimes made as reversible cloth with crean colour on the other side. Fabrics used for coating, scarves and rugs. Camel hair fabrics are virtually all made with woollen-spun yarns.

Camel hair: Natural protein fibres from two-humped camels from the Bactrian or dromedary (Asia, Africa, Australia).The annual yield is about 3-4 kg. The hair is about 50–60 mm long and about 70 um fineness. The undercoat of the camel hair is considered to be one of the fine animal fibre and is about 60–100 mm long and 14–26 um fineness and sandy to light brown in colour, sometimes dark brown or black. Camel hair is mostly used in the natural colour itself as this is difficult to over dye. It is like wool and gives worth without weight. Very expensive, often mixed with sheep's wool to reduce cost. Un blended fibre used to make knitwear and underwear, whereas in blend form it is used for ladies dress material, blanket, woven cloth coating etc.

Camel hair cloth: Usually denotes a fabric wholly made using camel hair. Because the hair of the camel, especially the fine undercoat, is of higher quality and more expensive than sheep's wool it is often imitated using wool dyed to camel shades. Wool fabrics dyed to camel shades are piece-dyed with a solid-shade appearance whilst genuine camel hair cloths can be distinguished by their slightly mottled appearance which has high fastness, especially to rubbing and to light exposure, and they also withstand standard dye stripping tests. Finishes include velour (upright napped or laid pile) or as a pilot cloth with long brushed pile. Weight between 450–750 g, providing good thermal insulation. Used in high quality outerwear.

Cameline: (1) A coarse medieval fabric, made of camel hair in twill weave, similar to the cashmere; (2) Woollen dress goods in fine basket weave and finished with a soft nap.

Camelot: An imitation Camlet fabric produced in wool and cotton.

Camelot baracane: French term for baracan made with the warp heavier than the weft. See **Baracan.**

Camelotee: 18th-century French fabrics of smooth finish made with pebbled or granulated effect, produced by the coloured filling.

Camera coarse: Loosely woven French linen, unbleached or dyed yellow.

Camera work: Photographs attached to a linen ground and surrounded with embroidered flowers and scrolls.

Camerick: 16th-century name in England for cambric.

Cameron of Erracht: Highland tartan, made as follows: Wide dark green bar, split with a group of four narrow red stripes in the center (the outer stripes being wider than the inner ones), a black stripe (about one-third of the green),

a very narrow red stripe, a dark blue bar, as wide as the green, split by a pair of the wider red stripes with a yellow stripe between (the three not touching), a very narrow red stripe, a wide black stripe.

Cameron of Lochiel: A Highland tartan with a red ground, the stripes arranged as follows: Narrow white, edged with narrower blue on both sides, the large, even sided red square is traversed both warp and weft wise by two wide stripes, narrow white stripes, edged with narrower blue on each side. The next large red square is uneven sided, traversed by the two blue stripes continued from the even sided square and these are crossed by two narrower green stripes.

Camientries: Wool fabric made in Norwich, England, in the 17th century.

Camlet: A fine lustrous yarn resembling camel hair or a corresponding plain weave fabric made from linen or cotton with worsted or silk plied yarns.

Cammaka or Camoca or Camak: Fine medieval fabric, believed to be of camel's hair and silk.

Camocato: A Damask satin made in China.

Camogi: Long and fairly strong vegetable fibre from Southeast Africa; used as substitute for hemp.

Camoyard: Twilled French fabric, made of goats' hair.

Camouflage: The disguise of animals, personnel or equipment by the use of such colours as make the object in question appear to merge with its surroundings. Derived from the French 'camoufler' – to disguise. It is an offence to wear camouflage clothing in Barbados unless the wearer is part of the Defence Force. See **cryptic colouring.**

Camouflage dyeing and prints: Dyeings and print on fabrics which is used as outer wear garments in armed forces. Print/dyeing should meet highest fastness requirements and sometimes need with special finish requirements like, UV absorbent, soil release/ repellent finish etc.

Campane or Campaigne: (1) Narrow French bobbin lace of the 18th century, made of flax or silk with scalloped edge; (2) Gold, silver or silk fringe with bellshaped small tassels; used as dress trimming.

Campanula: A violetish-blue after the flower of the same name. Used by the art theorist Charles Blanc (1813–1882).

Campbell of Argyll: A Highland tartan, made with wide green bars and twice as wide blue bars. The green bars are alternately split with a yellow and white stripe. The blue bars are outlined on both sides with a wide and two very narrow stripes (on the inside) of black**.**

Campbell of Breadalbane: A Highland tartan, arranged as follows: Large checks are formed by two wide black stripes and a twice as wide blue bar between (the latter split in the center by a narrow black stripe). Between these groups are two solid green bars (as wide as the blue) with a narrower black stripe between. The wide green bars are split with a narrow yellow line in the center.

Campbell of cawdor: An even sided Highland tartan, made as follows: A wide black stripe, wide dark blue stripe, narrow red stripe (edged with black lines), wide blue stripe, wide black stripe, wide green stripe, narrow pale blue stripe with black lines on each edge, wide green stripes.

Campbell of Loudon: Even sided Highland tartan composed as follows: Very wide dark blue bar with a black stripe on each side and two narrow black lines in the middle, wide green bar, the same width as the pure blue bar, the green bars are alternately split with a narrow white or yellow stripe, edged with a black line.

Campbell of Strachur: A Highland tartan, composed of wide green and narrower black stripes, and crossed by yellow lines.

Campbell twill: A weave used extensively in the fine woollen and worsted trade. Also called Mayo twill.

Camping tentage: Any portable temporary shelter or structure designed to protect persons from the elements all or a portion of the covering which is made of fabric or other pliable materials.

Canadaris: Chinese and East Indian pure silk or cotton mixed satin, made with fancy stripes or window plaids.

Canadas: French woollen blankets.

Canapina: Strong and silky fibre of Argentine, yielded by the abutilon plant; used for cordage.

Canard: A dark blue.

Canary: Bright yellow resembling the colour of the canary's plumage.

Canary green: A dark yellow colour.

Canary yellow: The bright yellow of the canary.

Candela (cd): **T**he SI base unit for measuring the intensity of light. *Candela* is the Latin word for "candle." The unit has a long and complicated history. Originally, it represented the intensity of an actual candle, assumed to be burning whale tallow at a specified rate in grains per hour. Later this definition was replaced with a definition in terms of the light produced by the filament of an incandescent light bulb. Still later a standard was adopted that defined

the candela as the intensity of 1/600,000 square meter of a "black body" (a perfect radiator of energy) at the temperature of freezing platinum (2042 K) and a pressure of 1 atmosphere. This definition has also been discarded, and the candela is now defined to be the luminous intensity of a light source producing single-frequency light at a frequency of 540 terahertz (THz) with a power of 1/683 watt per steradian, or 18.3988 milliwatts over a complete sphere centered at the light source. The frequency of 540 THz corresponds to a wave length of approximately 555.17 nanometers (nm); normal human eyes are more sensitive to the green light of this wavelength than to any other. In order to produce 1 candela of single-frequency light of wavelength l, a lamp would have to radiate $1/(683V(l))$ watts per steradian, where $V(l)$ is the relative sensitivity of the eye at wavelength l. Values of $V(l)$, defined by the International Commission on Illumination (CIE), are available online from the Colour and Vision Research Laboratories of the University of California at San Diego and the University of Tübingen, Germany.

Candid- (L): White. The root of the word 'candid' (developing its meaning from 'white' or 'pure') and of 'candidate' – candidates having worn white togas in Roman times. See **toga praetexia**.

Candle filter: (1) A small filter interposed between the spinning pump and spinning jet to effect final filtration of the spinning solution prior to extrusion. (2) Sewarage filter system.

Candle Turbidimeter: A device principally used to measure high turbidity water with the results expressed in Jackson Turbidity Units (JTU) or Farmazine Turbidity Units (FTU). The JTU is measured with light scattering.

Candle water temperature: The temperature of the water surrounding the candle filter or within the heating jacket during fibre extrusion.

Candle wick yarn: A coarse folded yarn usually of 100%, ring or open end yarn.

Candlewick fabric: A thick tufted pile fabric imitating an early handicraft when the wicks if the candles were used for decoration. The extra yarns are added to a loosely woven fabric of muslin construction and the thicker yarn is threaded through the backing in straight line or patterns, leaving spaces in between. The loops are then cut leaving thick tufts firmly wedged in the backing. An unbleached muslin bed sheeting (also called Kraft muslin) used as a base fabric on which a chenille effect is formed by application of candle wick (heavy plied yarn) loops, which are then cut to give the fuzzy effect and cut yarn appearance of true chenille yarn. May be uncut also. (True chenille is a cotton, wool, silk, or rayon yarn which has a pile protruding all around

at slight angles and stimulates a caterpillar. Chenille is the French word for caterpillar). Uses: Bedspreads, drapes, housecoats, beach wear.

Candy-coloured: Having a shade of pink. Also 'candy pink'.

Canebrake: Cotton grown on the southern central prairie of Alabama, the staple is strong, measuring about 11–16 inches.

Canezou: Short small jacket, spencer type, for women; later with a wide shoulder collar.

Cannage: A fault in silk cloths due to, for example, a warp tension effect. It is prevalent in taffetas and takes the form of ripples of alternate high and low lustre, distributed irregularly over the cloth.

Cannamazos: Spanish term for various grades of unbleached linens.

Cannelas: A cinnamon-brown colour.

Cannele: (1) Silk fabric, made with two sets of warps, one single and the other ply yarn. The single warp forms the foundation, the ply yarn floating over eight fillings, forming ribs. It is also made double faced by dividing the heavy warps and letting them float alternately both over the face and the back; (2) Fabrics woven with several picks in the same shed, forming short ribs which appear alternately on the face and the back, imitating the joints of the bamboo.

Cannele weave and repp weaves: Are in their construction related to the taffeta, and are used mostly in the form of stripes as an additional ornament to a fabric. The threads going into the composition of these effects exchange continually from taffeta interlacing to floating over a certain number of threads, and must be introduced either in warp or filling close enough to make the floats cover up the taffeta work entirely, and thus enable the material used to show up with the full brilliancy it possesses. Cannele effects can be produced in two distinct ways. One is to let every individual thread work alternately taffeta and float, while in the other method one thread weaves always taffeta, and a second thread is used for the cannele exclusively. These latter threads must come from a separate warp, which is introduced to embellish the ground or taffeta part of the fabric. The floating threads can either stitch all on one pick and so form a continuous cut line, or be divided in groups, of which one will bind in the middle of the floats of the other group.

Cannette: (1) French make single chappe yarn; (2) A fine wide cotton fabric, made with warp cords; used in the Philippines for dresses.

Cannetilles: (1) Lace or military braid made of gold or silver thread. See **Bullion**; (2) French dress goods and furniture drapery, having warp ribs, made with two sets of warps and eight leaves and eight fillings in a repeat.

Canotier: French term for dress goods; used for yachting and boating costumes.

Canourge: French woollen serge.

Canques: Cotton shirting in China.

Cantala fibre: Agave fibres (Indonesia, Philippines, Mexico) similar to sisal but softer and more elastic obtained from the species of plants Agave cantala.

Cantaloupe: A light shade of yellow after the melon of the same name.

Canterbury: English fancy dress goods of silk warp and cotton filling.

Cantiloon or Cantaloon: An 18th century pure worsted, made in England; used for women's wear.

Canton crepe: (1) This is crepe with filling yarns to produce a pebbly surface, originally a silk from Canton, now often made with viscose or polyester. It is durable, due to the high twist yarn, and washes easily. Often in white or may be piece dyed. Used for blouses and dresses.

(2) A sturdy silk dress material with a pebbly crepe surface with six S threads and six Z threads in arrangement and two S picks and two Z picks, originally made from canton silk, it is now made with 150–200 denier flat rayon in the warp and crepe rayon in the weft. Six picks in the warp and crepe rayon in the weft. A typical construction of light weight canton crepe is 96 x 46 with 150 denier rayon warp and 200 denier rayon filling. Another for a heavier fabric is 124 x 52 with same yarns as in the light weight fabric. If 150 denier rayon is used in the filling, four to six picks are added to the construction. Used for coat linings, dress goods, gowns, negligees, pajamas, scarves etc.

Canton flannel : A medium to heavy cotton fabric flannel is sometimes called Canton flannel, after the Chinese city where it originated. It is usually made with twill weave with 2/1 twill suitable for fabric which has to be napped on the back and 2/2 twill for the fabric to be napped on both sides with a soft filling yarn. A typical construction is 74 x 44 with 20s warp and 10s filling usually made 30 in. wide, it is used for a warm interlinings, pocket lining in top coats, gardening gloves, some baby clothes, sometimes used as warm lining for other clothes etc. It is soft and absorbent; may be used unbleached or dyed. Washes well; very inflammable.

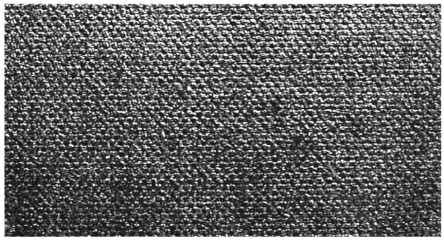
Canton satin: See **Satin.**

Canton silk: A raw silk reeled from very small domesticated silk cocoons in south china. The fibre is regular, soft and lustrous but light, hairy and weak.

Cantoon: A very stout, compact cotton fabric having fine diagonal wales on the face and napped in the back. It is woven in a 3-and-3 diagonal twill, having great many picks in an inch; used for riding breeches.

Canvas: Of the colour of canvas.

Canvas: A strong firm fabric (flax, cotton, viscose) woven with square interstices using hard-twist warp and weft threads. Sometimes called Duck. Used as carpet knotting, tapestry, shoes, sails awnings and suchlike and as stiffening material. It can also be open-weave, in various weights and in this form used as embroidery base fabric.



Canvas fabric

Canvas, in garment: A made up interlining for a garment.

Canvas Interfacing: This is made in various fibres and weights, but is generally heavier than other types of interfacings. May be 'sewn-in' or 'iron-on'. It is durable and very malleable under a hot iron with moisture. Most types can be easily shaped to the body and give excellent structure to a tailored garment. Used for coats and jackets.

Canvas duck: See **Number ducks**.

Canvas making: The sewing together of all the pieces which form the interlining of a jacket or coat either by hand or machine.

Cap ease, in sleeves: Fullness in cap between front and back notches that is eased to garment.

Cap height, in sleeves: Distance midway between biceps line and shoulder point.

Cap seam line, in sleeves: Seam line that outlines the top of the cap.

Cap spinning: A system of spinning employing a stationary, highly polished metal cap just large enough to fit over the take-up bobbin, which revolves at a high rate of speed. The cap controls the build and imparts sufficient tension to the yarn for winding. The yarn is twisted and wound onto packages simultaneously.

Capacitance: The measure of the ability of a nonconductor to store electrical energy by means of the potential difference across the surfaces of the nonconductor.

Capacity: Maximum value for which a machine, instrument, or a measuring instrument is designed.

Capah Damask: A rich, purple coloured silk damask mentioned in the times of Henry VIII.

Cape: Circular covering for the shoulders; the inside yoke of a coat.

Cape Coat: An overcoat with a cape and with or without sleeves.

Cape leather: Originally this name came from Cape of Good Hope sheep, but it mainly come from USSR. It is firm and hard-wearing, and is usually give a glaze or shiny finish. Used mainly for gloves.

Cape Wools: From South Africa; the staple is fine, silky but short and dirty; used for woollens.

Capella: A 2/1 twill weave using mulberry silk fabric and generally used as dress material. Capet, face to face.

Capillarity: Generic term for all physical phenomena which occur in consequence of the Surface tension of liquids in capillaries and cracks and in porosity.

Capillary action: A process by which liquids are drawn through the fabric and into pores found between fibres and yarns.

Capsicin: The red pigment in cayenne pepper.

Capiton: A coarse grade of waste silk in France.

Capmeal: Coarse woollen fabric of the 18th century, made in England.

Capot: French men's wear for sailors clothes, waterproof coats, etc.; made very strong with napped and fulled face.

Cappadlne: Silk waste yielded by the inner side of the cocoon.

Caprolactam: A white, crystalline, cyclic amide ($C_6H_{11}NO$) which yields ε-amino-caproic acid on hydrolysis and is used as a raw material in the manufacture of nylon 6.

Capucine: A dark yellowy orange.

Caraco: Short tailed jacket for women, similar to a tailcoat.

Caracul: Asiatic variety the broad tail sheep which owes its name to the town of Kara Kulin eastern Bokhara, but it is also reared in Persia for example and now in south west Africa also. The caracul sheep gives a very coarse wool.

Carragheen: A sea weed usually called Irish moss, pearl moss, kelp. Contains approx. 80% mucilaginous substance content. Dried seaweed (North Atlantic), can be bleached to light colours. The substance once used as finishing agent

after soaking in cold water and boiling to dissolve, to get "natural finish" for cotton = supple-voluminous stiffness, with no real hardness; also for wool, also used as a clarifying, stiffening or gelling agent.

Caraguata: Very long, soft, silky leaf fibre of good strength, yielded by the Bromelia plant in South America; used for ropes.

Caramel: A pale brown colour; the colour of toasted sugar. The dark brown colouring used as a colouring agent in food (E150).

Caraua: Fine glossy fibre, yielded by a species of the Bromelia in Brazil; used for ropes.

Caravonica: Tree-cotton, produced by the crossing of long staple Mexican cotton with a coarse long staple Peruvian growing in India, Mexico, etc. Will grow in hot climate with not too much rain. There are two varieties: (a) wool caravonica, adapted for mixing with wool and (b) silk caravonica, which has long, lustrous strong fibre.

Carcassonnes: Light woollen dress goods, made in Carcassonnes, France.

Carbamates: Carbamates are a family of related compounds that also react with Formaldehyde to form N-methylol derivatives. A general structure of the starting compound is shown in the box below. This structure is also called a urethane so carbamates are simple urethanes. The alkyl group (R-) can be methyl, ethyl, propyl or hydroxyethyl. The methyl and ethyl carbamates are carcinogenic and no longer used. The propyl and hydroxyethyl are safe and are used today. Carbamates react with formaldehyde to form N-methylol derivatives. They can react with up to two moles as shown below. The reaction is difficult to drive to completion and the equilibrium is such that the best that can be done is 1.7 to 1.8/1. This leads to products that have high free formaldehyde.

Carbamide: Urea.

Carbohydrates: This large and important group of organic vegetable products was given its name at a time when, of the chemical construction of these substances, virtually only the total formula $(C_x(H_2O)y$ was known, which is invalid for all carbohydrates in the light of current knowledge, and, incidentally, also covers other compounds which do not represent carbohydrates, e.g. acetic acid ($C_2H_4O_2$), lactic acid ($C_3H_6O_3$) etc.

Carbon chain fibres: Synthetic fibres having only carbon atom in the main chain of the macromolecule such as polyacrilonitrile, polyvinyl alcohol, ploy vinyl chloride, polyolefin, polyflourinated fibres etc.

Carbon-arc lamp: A type of fading lamp which utilizes an arc between two carbon electrodes as the source of radiation.

Carbon black: Can be made by thermal decomposition of acetylene, residue from burning coal tar, tar oils, naphthalene, natural gases etc. It is deep black very fine carbon n the form of graphite crystals, (2–6 nm India.) It is completely insoluble in water and used for making jet black pigments for mass colouration, Indian ink, typewriter ribbon, leather etc.

Carbon emissions trading: A system in which a company that emits pollutants at a lower level than its target is able to trade and sell this to companies that cannot economically reach their target emission level. This is part of the ***Kyoto Protocol 1997***.

Carbon fibre: A high-tensile fibre or whisker made starting from regenerated fibre (Viscose filaments with or without drawing) and synthetic fibres (polycarbonate, polamide, polyacrylonitrile, polyvinyl alcohol) which are first of all oxidized by pyrolysis and the carbonized (300-1600°C) and 'graphitsed' at 1500–3000°C. Carbon fibres so formed contain 80-90% carbon. Fibres may be 7–8 microns India.

Carbonate Hardness: The hardness caused by carbonates and bicarbonates of calcium and magnesium in water. The amount of hardness equivalent to the alkalinity formed and deposited when water is boiled. In boilers carbonate hardness is readily removed by the blow down.

Carbonised and neutralised wool: A term descriptive of scoured wool processed to destroy cellulosic impurities by treating with a mineral acid or an acid salt, drying and baking crushing and dusting out the embrittled cellulosic matter followed by neutralization of the acidified wool.

Carbonising, in wool: Employed for removing vegetable fibres and impurities (burrs, straw etc.) from wool. Generally sulphuric acid of 7% concentration (occasionally hydrochloric acid 4.7%, aluminium or magnesium chloride solution (7–11%) are used for this purpose. After acid treatment centrifuge to 40% moisture, dry and bake at 140°C, shake to remove the carbonized material and neutralize. Aluminium and magnesium chloride is less harmful to wool.

Carbonising: A chemical process of elimination of cellulosic material (yarn or fibre from a polyester admixture. Carbonising is also essential when the raw stock is mainly composed of rags or waste (dry carbonising with HCl gas at 80°C). In fact, with this type of material the carbonising process eliminates any vegetal residue in the staple after scouring, due to the good resistance of wool to the action of acids which, on the contrary, destroy cellulose, and to the strong dehydrating action of the acid which provokes a weight loss that cannot be exactly evaluated in advance. Carbonising can be carried out also on staple fibres, yarns and fabrics. Washed and sometimes piece-dyed fabrics as well

as gray fabrics can also be carbonised. The operating conditions necessary for the carbonising process are the following: the fibres are soaked with H_2SO_4 (25.4 ° Bé or 4.6 %), squeezed by means of two cylinders and then dried in a stenter at 85–90°C, for 30–60 minutes. Hot air concentrates the acid by evaporation, as a result dehydrating and hydrolysing the cellulosic matter. Finally fibres are carefully washed to remove completely any residual acidity, which could affect the fibre and subsequent operations. A series of washing processes also includes a neutralisation treatment with sodium acetate. During the fabric process, a dry beating process to remove the carbonised vegetal residues from the fabric texture precedes the washing phase.

Carbonising agent: In accordance with TEGEWA nomenclature, those textile auxiliary agents which facilitate and accelerate penetration of the carbonizing acid into the vegetable impurities in the wool, promoting destruction of the vegetable impurities. Carbonizing agents also enable the quantity of acid and the duration of carbonizing to be reduced, thus protecting the wool fibre.

Carbonising, fastness to: Assessment of the effect on the shade of a dye by the carbonizing process, by which foreign vegetable fibres are removed from wool by means of diluted sulphuric acid and aluminium chloride solutions. When acetate or polyamide fibres are to be removed from wool, carbonising must be effected with aluminium chloride. Test implementation:

15 mins at room temperature with

(a) 60% sulphuric acid solution,

(b) 60% aluminium chloride solution,

with a 20 : 1 liquor ratio, squeezing/centrifuging to 80%. Drying: approx. 30 min. at 60°C. Carbonizing: 15 min at 105°C for the sulphuric acid process, and 15 min at 115°C for the aluminium chloride process, rinsing test specimens in cold flowing water for 5 min. Then dry half at 60°C in hot air, and neutralise the other half – with sodium carbonate in the case of the sulphuric acid process, and with ammonia after using the aluminium chloride process. Rinsing, drying. Grey scale assessment of the two halves.

Carbonizing chamber: Part of the drying device for temperatures above 100°C used in carbonisation.

Carbonyl Dyes/Pigments: The chemical class of colorants which is second in importance to azo dyes And pigments is characterized by the presence of a carbonyl (C=O) group, which may be regarded as the essential chromophoric unit. The vast majority of carbonyl dyes and pigments contain two or more carbonyl groups which, as illustrated in, are linked to one another through a conjugated system, frequently an aromatic ring system.

Carborundum: (Silicon carbide), SiC. Manufactured at above 2000°C from carbon and quartz. Characteristics: Multicoloured (reddish, greenish blue, black) crystals, extremely chemical and heat resistant, similar hardness to diamonds, density 3.2. Application: As grinding and polishing material, for the manufacture of fire resistant bricks and electrical resistors.

Carboxyl extra group: It produces amino acids e.g. in keratin molecules. The carboxyl extra group determines the behaviour of wool and silk towards alkalis, by reacting as acids.

Carboxylic acids: Carbonaceous organic acids, which are made up of Alkyls and the characteristic carboxyl group – COOH, e.g. CH_3–COOH (acetic acid), derived from the hydrocarbon CH_4 (methane), also as Polycarboxylic acids. Mono, di-, tri- etc., aliphatic, aromatic, saturated and unsaturated carboxylic acids exist. Opposite _ Mineral acids.

Carboxymethyl cellulose (CMC): Carboxymethyl cellulose is made by the reaction of sodium chloroacetate with cellulose. Lumbering by-products, namely stumps, limbs etc. are ground-up, soaked with alkali and made to react with sodium chloroacetate. The degree of substitution can be controlled up to a maximum of 3 carboxymethyl groups per anhydroglucose unit. For textile sizes, the DS is usually 1.5. It is colourless water soluble cellulose ether which swells and forms a gel when stirred into water and forms a viscous colloidal solution.

Carboxymethyl starch: Thickener used in printing of Polyester with disperse dyes and for vat dyes. Reaction product of starch with chloroacetic acid (in the presence of alkali), also mixed ether with other etherification substances (dimethylsulphate, ethylene oxide or propylene oxide). Substitution or etherification degree 0.3–0.5.Carboxymethyl starch has had which Cold water soluble carboxymethyl starches are generally highly substituted, in which some of the hydroxyl groups replaced with carboxymethyl groups. It also improves solubility and the stability of pastes and has some resistance to chlorine bleach, and may be used for thickening bleach for use in discharge techniques. Monagum is one trade name.

Carcinogen: An agent that causes or promotes the development of cancer in animals, such as tobacco smoke or ionizing radiation.

Card: (1) A machine used in the manufacture of staple yards. Its functions are to separate, align, and deliver the fibres in a sliver form and to remove impurities. The machine consists of a series of rolls, the surfaces of which are covered with many projecting wired or metal teeth. Short staple systems employ flat strips covered with card clothing rather than small rolls. Distinction has to be made between the flat card (short staple system) and the

roller card (worsted and woollen systems). In the former the prepared cotton lap is opened up to single-fibre state, the fibres extended and assembled into the Card sliver. (2) The seed head of the teazle plant or more commonly an assembly of wires protruding from a base structure, both used for raising or napping the surface of a cloth, generally a woollen cloth.

Card clothing: Used to cloth the flats of cotton cards (i.e., cylinder and rolls or flats.) and the rollers of woollen and worsted cards and also as card fillet for the rollers of napping and raising machines. The clothing consists of either wire teeth set in a foundation fabric or rubber, or narrow serrated metal flutes which are spirally arranged around the roll. The metallic wire has the appearance of band-saw blade. This foundation is a composite multi-ply structure consisting of woven cotton back and a maximum stability and a pliable rubberized blanket face. Flexible ply ensures that the tip of the heavily stressed pins always return to their initial angle.

Card conversion efficiency: The efficiency of the carding process, expressed as a percentage obtained from ratio of sliver output to staple input.

Card fettlings: Wool Waste removed from carding engine cylinders. It is often matted and dirty.

Card sliver: Semi-manufacture stage in the spinning od cotton/viscose. A web of fibres in the ribbon form comprising of fibres in the parallel form.

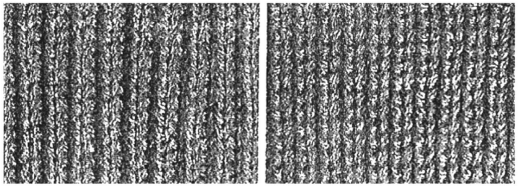
Carda: Inferior silk fabric of the 13th century, believed to have been used for lining.

Carded wool: Scoured wool which has been processed through a carding machine.

Carded yarn: Manufacturing term for yarn produced on woollen spinning system characterized by their bulkiness and more or less hairy surface. A cotton yarn that has been carded but not combed. Carded yarns contain a wider range of fibre lengths and, as a result, are not as uniform or as strong as combed yarns. They are considerably cheaper and are used in medium and course counts.

Carders: Also known as hand carders (as opposed to “drum carders”). Some of the carders have curved backs, some straight backs. There is some belief that the reason why modern hand cards have the curved backs is because they were modeled after museum pieces. Unfortunately, the museum pieces were warped (curved). Early plans for carders show the straight backs. A more critical requirement is that the cards have offset handles. This will save wear-and-tear on your hands.

Cardigan: In knitted fabric a stitch which is used to shape underwear or is employed in knitting jackets. In a cardigan stitch, the first course knit tuck loops on the front bed and plain loops on the back. The next course is the opposite. The tuck stitch emphasise the plain loops. Cardigan is heavier and



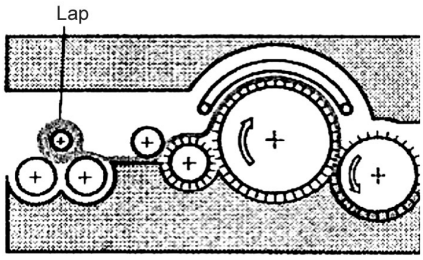
Cardigan Half cardigan

heavier and wider than 1x1 rib. In half cardigan (Royal rib) a course of 1x1 rib is followed by one with plain loops on the front bed and tuck loops on the back. The face side shows prominent wale ribs whilst the back looks like cardigan. The voluminous cardigan and half cardigan structures are used mainly for thick winter pullovers, scarves and berets.

Cardigan Jacket: A close fitting ribbed woollen or worsted body jacket, with or without sleeves.

Cardinal (red): The scarlet colour of a cardinal's vestments.

Carding: The process of untangling and partially straightening fibres by passing them between two closely spaced surfaces which are moving at different speeds, and at least one of which is covered with sharp points. Thus converting a tangled mass of fibres to a filmy web.



Card ,Schematic

Carding wools: Wools that are too short to be treated by wool combing and must be processed into woollen yarns. Synonymous with "clothing wool".

Care instructions, in textiles: A series of directions describing which care practices should refurbish a product without adverse effects and warning for those care practices expected to have the a harmful effect.

Care label: A label that gives the directions for refurbishing a product.

Care labelling of textiles: Care labeling is to provide the customer/end user/ purchaser of a textile product with the information on the fibre composition and care of the textile. In the care of the textiles normally wash method, ironing temperature, whether dry cleaning allowed etc. mainly in symbol form so that customer of any language can understand them.

Care procedure, for consumer care textile products: A process by which products or specimens may be treated for soil removal and aesthetic improvement.

Career apparel: Garments, the style and performance of which are designed for various end uses as to be suitable for on-the-job wear in a variety of business and professions.

Carisol: A French thin open canvas used for embroidery foundation. Also called **Creseau**.

Carlett: Wool fabric made in Norwich, England, in the 18th century.

Carlowne: A worsted suiting made in Britain in the 17th century. Not common now.

Carmeline: Medium grade of the vicuna wool; used in France.

Carmelite: French all-wool, light, plain woven dress goods, made of natural wool and fulled; similar to bunting; used for clothing by the Carmelite monks.

Carmine: (1) A crimson colour.

(2) An ancient red, orange or crimson pigment originally derived from the **kermes** insect and subsequently from the **cochineal** insect. Used, amongst other things to manufacture eye **make-up**. See **cremosin**.

Carnadine: **Carnation** colour.

Carnauba wax: (palm wax). Most important vegetable wax, which is obtained from the surface of the Carnauba palm leaf (South America). Brittle, fragile, greyish yellow, slight lustre. Types: fatty grey, refined (paraffin additive), also bleached and brightened. Meltpoint 80–86°C, light qualities lower, refined 70–72°C.

Carnage, tear drop, teariness: Local difference in light reflectance caused by variations caused by variations in curvature of warp crimp. The fault occurs in plain weave fabric made with a continuous filament warp and may rise if the warp is too stiffy or if the warp tension is too low.

Carnation: Rose-pink, flesh-coloured. '*A' could never abide carnation- 'twas a colour he never liked*' Shakespeare's *Love's Labour's Lost Act 2 Scene 1.*

From *carneus* the Latin for flesh-coloured. It was not until the 20th century that 'carnation' also came to be used as the colour of the flower although having regard to the many varieties of the flower in modern times the colour term used in this context has little precision.

Carnauba: Leaf fibre yielded by the carnauba palm in Brazil; used for ropes, cordage, hats, baskets.

Carnelian: A pale reddish-brown or ruby colour after the semi-precious stone of the same name; see **sard.** Also called **cornelian**.

Carnestolendas: Silky seed hair yielded by a tree in Venezuela.

Carnival Lace: A 16th-century reticella, similar to the bridal lace in make and worn at festive occasions.

Caroa, Craua, Croa, Coroa fibre: A fibre from the leaf of a plant Neoglazovia variegate grown in central and south America. The fibre is creamy white in colour strong, flexible and soft to touch. Compared to Jute Caroa is 3 times stronger, and the woven material is half as light as similar material made from jute. Can be used for making suitings, coatings as well as for twine, rope, rugs, paper etc.

Carob: Active content of Locust bean flour (the fruit of the locust or carob tree). Contains high molecular weight carbohydrates and hemicelluloses, mainly galactomannan.

Carocolillo: Cotton yarn dyed red with the carocol shell in the West Indies.

Carolina Pride: A commercial variety of early maturing cotton from US, the staple measuring 23-26 millimeters and forming clustered bolls; the yield is about 31 percent. Also called **Early Carolina,** since the same is grown in North Carolina.

Caroline: (1) Plain French serge dress goods, made with eight leaves and eight picks in a repeat; (2) Bleached linen of medium grade, made in Silesia.

Caroline Plaid: An early 19th century English dress goods, three-quarters wide, made with cotton warp and worsted filling in plaid design.

Caroset: General term for various French flannels twilled on both sides and thoroughly fulled. Also sort of melton, made in the Vendee.

Carousel printer: Screen printing machine for the automated printing of the finished textile using carousel system.

Carousel screen printing Machine: A semi-automatic screen printing machine on which screens are accommodated in a rotating frame, which runs

between two short tables, so that two fabrics can be printed next to each other by two printers by swinging in the screens.

Carpet: A floor covering having a textile use surface formed from yarns or fibres projecting from a substrate and not designed as rugs. Thick and strong floor covering, reversible or otherwise woven, knitted or felted, made of wool, cotton, hemp, etc. It is made in widths which are sewed together to cover the entire floor. They are classified into different groups.

(a) *Type of manufacture:* knotted, woven, knitted, stitch-bonded, tufted, needle-felt, flocked, bonded carpet.

(b) *Surface:* flat, pile, bouclé (loop pile), velour (cut pile) carpet.

(c) *Colour:* plain, multi-coloured carpet.

(d) *Supply form:* rugs, roll goods, carpet tiles.

(e) *Origin:* Oriental, Balkan, Bavarian, Dutch carpets. Certain marks of origin have become generic names.

(f) *Application:* bedroom, living room, workplace; indoor, outdoor, contract, automotive carpets.

Carpet ageing: Artificial ageing of carpets, achieved by chlorination, which brings about an intensification of the appearance of colour, pile and lustre, usually associated with simultaneous damage to the fibre.

Carpet back coating: See **Back coating of Carpets.**

Carpet beetles: Beetles whose larvae feed on and cause damage to wool carpets. Textile parasites.

Carpet binding: (1) A tape to bind the edges of floor coverings; comes in wool or cotton.

(2) The edge-binding of cut, tufted floor coverings especially which is laid wall to wall.

Carpet module: The textile floor covering sections usually having dimensions of less than 1 m2.

Carpet pile: See **Pile layer**.

Carpet pile brush, in Carpet cleaning: A hand operated brush having long, semi-rigid bristles intended specifically for erecting the pile of small areas of carpet.

Carpet square: A term for a carpet in rectangular form, with or without a border, at least 1.83m (traditionally 2 yards)at the shortest dimensions and and normally loosely laid.

Carpet sweeper: A manually controlled machine which has rotary brushes and and which is used for light surface of cleaning of carpets and rugs.

Carpet thread: Heavy three-ply sewing thread; used for joining carpets.

Carpet tile: A textile floor covering material supplied in small sizes, popularly 18" × 18" or 50 cm × 50 cm. Carpet tiles are supplied for being directly 'glued' to the floor or for so called 'free laying' Tiles intended for installation by being directly 'glued' to the subfloor are required to be accurately cut to shape and size and to be relatively fray-free. For for the 'free laying' tile carpet should have a dimensional stability of 0.2–0.4% under changes of humidity and temperature. To achieve this, the tile incorporates a special backcoating comprised of layers of, for example, bitumen, glass, PVC or atactic polypropylene.

Carpet Wool: Coarse, harsh, strong wool that is more suitable for carpets than for fabrics. Very little of this type is produced in the U.S. Some of the choicer carpet wools are used to make tweeds or other rough sport clothing. Some breeds, like Karakul, are mainly used for rugs.

Carpet, Axminster: Cut pile carpet produced by inserting during weaving, successive rows of tuft having colours arranged according to a predetermined order.

Carpet, body: Plain or unboardered patterned carpet in piece form, traditionally ¾ yard or 0.69m or 1 yard (0.91m) wide mainly used for making up into layer areas by seaming or otherwise joining edge to edge.

Carpet, bonded pile: Pile carpet in which the pile consists, for e.g. of a pleated sheet of textile yarns or fibres, secured to a support by coating or adhesive, or directly to an adhesive which forms the support.

Carpet, bonded pile: A textile floor covering with a pile use surface secured to a substrate by adhesion.

Carpet, braided without pile: Textile floor covering without pile made of machine braided cords sewn together.

Carpet, broad loom: Descriptive of carpet made 1.83m or more in width (Traditionally 2 yards).

Carpet, brussels: A loop pile carpet, woven on wilton loom over unbladed wires.

Carpet, chenille axminster: Carpet in which the pile is composed of so called 'chenille' yarns (chenille fur) manufactured on a special machine and inserted during the final weaving.

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Carpet, cord: A low level loop pile carpet with pronounced rows of loops in weft direction.

Carpet, double plush: See **Carpet, face-to-face**.

Carpet, face to face: Carpet made on a loom which produces simultaneously, face to face two substrate joined by a pile yarn. Two cut pile carpets are made by cutting the pile yarns between the two substrates.

Carpet, face to face bonded pile: Pile carpet manufactured on a machine which produces face textile floor coverings, with pile forming material passing alternately from one substrate to another, when it is fixed by adhesive. Two cut pile carpets are made by cutting the pile forming material between the two substrates.

Carpet, flocked: Carpet obtained by projecting the fibres on to a support coated with adhesive.

Carpet, gripper axminster: Carpet manufactured on a jacquard loom in which the tufts of yarn cut after selection from appropriate creels are inserted at the point of weaving by grippers.

Carpet, gripper spool axminster: Carpet manufactured on a loom in which the yarn for each weft ways row is wound on a separate spool for spool axminster weaving. Tufts served from the yarn are inserted at the point of weaving by 'grippers' as in gripper axminster.

Carpet, hand knotted pile: Carpet obtained by knotting the pile forming yarns by hand.

Carpet, 'Jacquard Weave': Pile carpet produced on a jacquard loom and having a design obtained by the use of the creel (frames), each supporting the bobbins of pile yarn of different colours. The successive selection of the appropriate frames during weaving forms the required design.

Carpet, knitted pile: Carpet made on either (a) warp knitting machine (Rachet type) or (b) weft knitting machine (Wildman type).

Carpet, knotted pile: Carpet produced by knotting the pile forming yarns around warp yarns of the substrate.

Carpet, machine knotted pile: Carpet manufactured by automatic knotting.

Carpet, needle pile: Pile carpet produced by needling of the materials and bonding by physical or chemical process or by a combination of both. The pile may be cut or looped.

Carpet, pile: **woven pile carpet.** Pile carpet produced on a loom in one or more operations.

Carpet, 'plain weave': Woven pile carpet with uniform pile length containing generally a single colour.

Carpet, spool axminster: Carpet manufactured on a loom on which the yarn of each weft row are wrapped on a separate spool, according to the required design. The tufts are separated from the yarns presented at the pint of weaving after inserting the substrate.

Carpet, stitched on pile: Pile carpet in which the pile is stitched on to the substrate by stitching.

Carpet, tufted pile: Carpet in which the pile yarns are fixed in a previously manufactured base and then secured by coating as an adhesive.

Carpets, weft-patterned: Machine-woven carpets, the pattern of which is produced by the relevant insertion of coloured weft yarns.

Carpet without pile: The textile floor covering without pile made on a loom.

Carpet, without pile, formed of bonded textile: Textile floor covering without pile, in which the use surface is composed of entangled textile material bonded together by a mechanical, physical or chemical process or by a combination of two or more of these processes.

Carpet yarns: Filament yarns for the carpet sector are produced mainly by the BCF process, which produces in one operation from the granulate via extruder spinning, drawing, texturing, interlacing and winding. The crimp structure is obtained by braking the filaments in a heated chamber (stuffer box), producing yarns in the 500 to 4000 dtex count range. Maximum production speed is 4000 m/min (polyamide) and 3000 m/min (polypropylene).

Carpettes: Coarse French twilled bagging for raw wool, made of tow, unbleached and striped.

Carpmeals: A stout and coarse English woollen fabric; used for clothing in the northern parts of England.

Carriage, in knitting machine: The carriage carries out a double function and can be used:

(a) To select the needles and make them raise or lower to form the stitch. (b) To select and drive the thread guides which feed the needles. The carriage is made up of two metal plates linked by a stiff bridge; the plates work individually and simultaneously on the front and the rear needle-beds. The plates include cam locks bearing the drive and control systems of the needles, i.e. the cams. When the carriage moves right- or leftwards, the thread guides are locked individually by the corresponding pistons on the upper part of the bridge that are manually driven. Brushes are also mounted on the carriage to ensure a smooth needle latch opening and grant a correct feeding of the yarn.

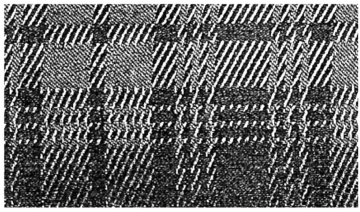
Carriage lace: A woven narrow fabric on the face of which is an uncut pile design, generally incorporating one weft, but two or three wefts are used sometimes for further ornamental effects. It is used to give finish to the upholstery of railway carriages and other forms of transport.

Carriage weight, effective: See **Effective carriage weight**.

Carradars: Indian gingham with multi-coloured narrow stripes.

Carranclanes: Narrow ginghams in the Philippines, coming mostly in checks and plaids.

Carre: Chequered.



Carreau: French term for checks.

Carrick: Coat with several stepped shoulder layers.

Carrickmacross Lace: (1) An old Irish traditional type of lace made with heavy yarns in an almost crochet type of work. It is characterized by many loops. The sprigs consist of fine lawn with buttonholed edges, connected with each other by bride's picotees making guipure. (2) The sprigs are bobbin made and appliqued over a machine made ground.

Carrier with respect to disperse dyes: A chemical that aids dyeing disperse dyes on polyester at moderate temperature, like at or around the boiling pint of water. In order to dye polyester with disperse dye in a reasonable time at the boil, it is necessary to use a carrier. Exactly how the carrier works seems to be a matter of some controversy, but it may work by swelling the fibres so that the dye can penetrate. The carrier will eventually evaporate from the fibre after dyeing is complete. Carriers are obsolescent in industrial process, partly because they are quite noxious and environmentally undesirable.

Carrier residues: Since residues of carriers can impair the light-fastness of dyeings, particularly on polyester, they are best removed through reductive final scouring with soda lye and sodium dithionite.

Carrier rollers: Provided in order to prevent slippage of the rollers.

Carrier stains: Stains formed to the precipitation of carriers in the dye bath. Usually carrier is used in the emulsified form in the dye bath, which can

break due to change in the pH or any other condition which keeps them in the emulsified form. Carrier stains are difficult to correct.

Carrier system: Relates to yarns (dyeing machine suspension system) for ladies' hose, which are treated in specific hose dyeing machines suspended over sticks in bundles. Sometimes also usable for hank yarn.

Carrier, in braiding machinery: Those parts of the braiding machine that holds the package of yarn thread or cord and carries the yarn when the machine is operated.

Carrot orange: The yellowish-orange colour of the carrot previously referred to as **carrot red.** Carrots have not always been orange in colour. The Egyptians from 2000 BC grew purple carrots and the Romans ate purple and white carrots. Black, red, green and yellow carrots were also grown but Dutch carrot-growers favoured their chosen orange colour which became the standard colour for carrots from around the 16th century. The orange colouring derives from **beta-carotene.** Purple carrots are now being grown in England.

Carroting: The steeping of hare and rabbit hair in mordant. A term from the hat-making industry. The best mordant for this is the mercury nitrate mordant, where mercury is not released (incorporated into the hair keratin).

Carthagena: West Indian cotton, grown from American seed; has a fairly strong staple.

Carthamin (e): The red dye of the safflower.

Carthamus: Safflower, an annual plant cultivated in South Europe, Egypt and Asia, for the red dye from its flowers.

Cartisane: Parchment used for padding the cordonnet or the foundation of the point laces and also to pad raised embroidery patterns.

Cartouche: French gros de Tours, the warp is made in repeated ombre, divided by stripes at equal distance. It was often given a moiré finish; obsolete.

Cascara: Native Peruvian and Bolivian name for a cloth-like bast of the couratari tree; used for blankets, clothing, ropes, etc.

Case: A shipping unit, usually a carton, box, bale or other container holding a number of yarn packages.

Case cord: Continuous filament case cord yarns and steel cord yarns are woven to form the load-bearing plies forming the carcass or body of a vehicle or aircraft tyre or heavyweight conveyor belting, drive belts etc.

Casement cloth: As the name implies, this is for casements or curtains. Usually cotton, it is plain weave fabric in white or cream, with the weft often predominating on the surface. It is soft and drapes well. The term is now

generally used for a wide variety of simple weave plain curtaining, made from practically any fibre and in any colour, and in various weights. It is not particularly hard wearing, so not used for other furnishings. May shrink, can be lined.

Casha: A fabric woven of wool with some Cashmere goats wool; similar to flannel in appearance, but the cashmere adds softness. Used for over coats for adults and children.

Cashemire de soie: A fabric made of very fine Silk to imitate a Cashmere fabric, by giving a high grade effects, which is given a finish to look like cashmere fabric.

Cashgora: Cashgora means the fine bottom hair of the cashgora goat, which is the result of cross-breeding female cashmere goats and male angora goats in New Zealand. It was only in the 19th century that the finest bottom hair was discovered in some of these wild goats. Cross-breeding trials of these animals were first undertaken in order to reduce the proportion of coloured bottom hair, since it is with the genes of the male angora goats that the feature "white colour" is passed on to descendants.

Cashmere, in roving, yarn or fabric: Cashmere hair or products made therewith having a cashmere coarse-hair content or not exceeding a specified maximum percentage by length.

Cashmere: (1) Very fine and soft wool yielded by the cashmere goat. The undergrowth is one of the very finest animal fibres known, called pashmina, while the longer hair is somewhat coarser. It is used for the best grades of Indian shawls, rugs and also dress goods. See **Cashmere hair** and **Cashmere wool.** (2) Woollen cashmere is a fabric similar to cheviot. To make softer handle earlier the wool used to be mixes with the silky hair of cashmere goat and hence the name. A characteristic construction of 24 square with 21/2 run woollen yarn in both wrp and weft, with a grey width of 70 in. and finished width of 60 in. and 12–14 oz. per yard. To get the soft handle now a days so many different mixing are used. (3) A closely woven, soft, fine and light dress fabric, made with single cotton or wool warp and fine Botany filling in a 2-1 weft face twill. The colour eit'ect is usually mixture; (4) Soft, loosely woven twilled cotton dress fabric, printed to imitate the mixed woollen. (5) knit goods, made of slack twist Saxony or other fine worsted yarn.

Cashmere atlas: All-wool, highly finished weft satin dress goods, the filling is finer and of slacker twist than the warp.

Cashmere cloth: Cashmere is made from the wool of Cashmere goat. It is warm and soft, silky and lustrous, with a smooth, slippery, luxurious handle.

Used for dress fabrics and coatings and suitings. Sheep's wool is often mixed with cashmere to make it less expensive but makes it harder. Soft botany wool is often made up in imitation of cashmere, but cannot be labeled as such.

Cashmere coarse hair: Those fibre in cashmere hair having a width greater than 30 μm.

Cashmere coarse hair content: The total length of the cashmere coarse hair that are present , expressed as a percentage of the total length of the of all the cashmere hair fibres; that is , the percentage by length of cashmere coarse hair in cashmere hair.

Cashmere down: Those fibre in Cashmere hair having a width of 30 μm or less.

Cashmere hair: Fibres produced by a form of goat (Capra hircus) indigenous to Asia known as Cashmere goat.

Cashmere shawl: One of the finest textiles known, made by the natives of Kashmir and Tibet on hand looms of pashmina wool (see). Some of them are embroidered, showing the pattern alike on both sides, others are only dyed in one or more colours. The French cashmere shawl is woven on jacquard loom in multi-coloured designs, which show only on one side. The shawls made at the present in Kashmir are inferior in colour and design. The warp is two-ply while the filling is single yarn. The latter is wound around small sticks used as a shuttle.

Cashmere wool: See **Cashmere**.

Cashmerette: (1) A twilled, soft and lustrous cotton fabric, often lightly napped, made to imitate cashmere; (2) Fancy woollen for waistcoats; obsolete. (3) Twilled dress goods of spun silk warp and woollen filling.

Casimii: An all-wool, twilled summer dress goods, made in narrow, diagonal twill without any fulling, usually of worsted warp and woollen filling.

Casinetes: Cheap cotton trouserings in Bolivia, Peru, etc.

Casing with Heading, in garment making: A piece of fabric is drawn up with a drawstring or elastic held in a tunnel made by applying a strip of fabric to the surface leaving a border at the top or bottom for decoration.

Casket cloth: Light, black fabric, made of wool and cotton; used for covering caskets.

Cassel brown: A brown pigment made from lignite and named after the town of the same name now called Kassel; also Cassel green and ***Cassel yellow***.

Cassel yellow: A yellow pigment also called Montpellier yellow.

Cassimere: A general term for all-wool fabrics woven plain or twilled, coarse or fine, of woollen yarn. The pattern is always woven plain and distinct and the cloth is never napped. Cassimere (a) Variety of plain woven or twilled woollen or worsted fabrics, in checks, stripes, etc., soft finished but not napped; used for men's wear; (b) Twilled woollen or cotton dress goods, made with two sets of warps in various colours and given a soft finish.

Cassimere twill: An even sided, four harness twill weave, each thread passing alternately over and under two threads.

Cassimerette: Cheaper grade of cassimere.

Cassinett: Fancy English alpaca fabric in the 19th century.

Cassinet: English twilled stout trousering and waistcoating in various colours, made of fine cotton warp and woollen yarn dyed in the wool. It is slightly fulled and calendered. The double cassinet is made with alternate woollen and cotton yarn filling. Three quarters of the wool filling is thrown on the face and three-quarters of the cotton filling is on the back of the cloth.

Cassius: A purple pigment.

Cast: A rough, coarse, bad-bred fleece of wool.

Cast: A pale shade or tinge of colour; a shade or colour; a dash of colour imposed on another.

Cast off position, in knitting: The needle is moved further downwards, the needle latch is closed by the old loop.

Castalogne: Fine woollen blanket made in France and Spain.

Castane- (L): Brown, chestnut.

Castel Branco: A good Portuguese carpet wool.

Castellamare: A type of raw cotton from Italy.

Castilla: Coarse homespun or imported woollen, having a long nap; used for shawls and cloaks by the natives of Peru.

Castillian: A deep red.

Casting out: A term used in weaving to indicate that some hooks of the jacquard machine or some healds on certain shafts of a dobby loom are not used.

Castle Wheel: The flyer is usually mounted above the wheel, which means less floor space is used.

Castor: (1) Heavy, stout, fulled and calendered broadcloth overcoating.

(2) Referred to in the *Daily Mail* of 5 June 1923. A dark brownish grey or a light brown beaver colour named, it is hoped, after the star in the constellation, Gemini, and not after the unctuous malodorous secretion of beavers.

Castor beaver: A heavy, milled, face-finished, all-wool cloth lighter in weight than ordinary beaver.

Castor oil: A very important raw material for textile auxiliary before the advent of new synthetic surfactants. The major fatty acid (90%) in this oil is ricinoleic acid. Hydrogen bonding through the hydroxyl group on C is responsible for the oil's high viscosity and solubility in alcohol. The oil is sulfated to become an important anionic surfactant (turkey red oil). Ricinoleic acid is also the starting material for making sebacic acid and capryl alcohol. It is cleaved with sodium hydroxide. Sebacic acid is a C, dibasic acid used to make Nylon 6, l0.

Castor oil soaps: The soaps made using castor oil.

Castravane: Raw silk from Asia Minor; used for braids.

Casual wear: Synonymous with Leisure wear, progressing in the mid-1970s to cover unconventionally more flamboyant garments combining greater comfort with more youthful style features, being lighter in weight and more yielding to the body, with highlighted stitching (of collars, pockets, belts etc.) and above all easy-care properties.

Cat eyes: See **Pin holes.**

Cat stitch: The cat stitch or herringbone stitch is an alternate slanting back stitch, the needle being placed first to the right and then to the left. This stitch must be worked evenly to be effective. It is used to finish flannel seams and hems, fasten down linings, opened seams, and canvas facings and featherbone, in millinery—in fact, this stitch is one of the most useful in sewing. The catch stitch is a variation of the cat stitch. Instead of pointing the needle towards the chest, the stitch is taken parallel with the chest. It is used for about the same purposes as the cat stitch. As with the outline stitch, the cat stitch is worked from the worker.

Catablattion: Purple coloured silk fabric of the Middle Ages.

Catacaos: A variety of the tree cotton from Peru.

Catalowne: Same as Buffyn made with double and twist yarn and a different coloured filling.

Catalyst: A substance that alters the rate of a chemical reaction without itself being changed chemically in the reaction. The catalyst can, however, undergo physical change; for example, large lumps of catalyst can, without loss in mass,

be converted into a powder. Small amounts of catalyst are often sufficient to alter the rate of reaction considerably. A positive catalyst increases the rate of a reaction and a negative catalyst reduces it. Homogeneous catalysts are those that act in the same phase as the reactants (i.e. in gaseous and liquid systems). For example, nitrogen (II) oxide gas will catalyze the reaction between sulfur(IV) oxide and oxygen in the gaseous phase. Heterogeneous catalysts act in a different phase from the reactants. For example, finely divided nickel (a solid) will catalyze the hydrogenation of oil (liquid).

The function of a catalyst is to provide a new pathway for the reaction, along which the rate-determining step has lower activation energy than in the uncatalyzed reaction. A catalyst does not change the products in an equilibrium reaction and their concentration remains identical to the concentration of the products in an uncatalyzed reaction; i.e. the position of the equilibrium remains unchanged. The catalyst simply changes the rate at which equilibrium is attained. to the negatively charged electrode of decreasing ionic radius. Promethium. Catalysts are not common in dyeing, but are used in fabric preparation and finishing.

Catalysts in resin finishing: The cross-linkers commonly used in resin finishing are used only with the addition of catalysts, which act as cross-linking reaction triggers and as reaction accelerators. The action of these catalysts is based on the freeing of hydrogen ions. Catalysis (acid), breaks the carbon/oxygen linkage of the N-methylol groups, and a reaction takes place with the hydroxyl groups of the cellulose with the discharge of water. The different catalysts used in different type of cross linking process:

Type of Finishing	Type of Catalyst	pH
Dry Cross	Linking Metal salts, Ammonium Salts	3-6
Moist Cross	Linking Mixed Catalysts, Free Acids	1-2.5
Wet cross	Linking Free Acid	0-1.5
	Free Alkali	10-12

Catalytic fading: Damage of cotton fabric due to the localised catalytic action of peroxide on cotton thereby the cellulose is destroyed (Pin holes) or oxidative changes on cellulose, which causes further problems in dyeing etc. This is mainly due to the iron contamination in cotton or in water, steam or any other material used in processing/bleaching.

Catasfittulum: A medieval fabric of unknown structure.

CATCC: Canadian Association of Textile Chemists and Colorists.

Catch: An under lap of material providing a backing to an opening to take buttons or zip tape for fastening e.g. flycatch, button catch.

Catechu: (cachou). From the Indian "Kati" plant and "chuana" = distil. Extract of the aqueous extract of the Indian tanner's acacia. No longer used brown dye, formerly used for tent and covering fabrics, as the fabric was simultaneously endowed with natural waterproofing, increased weight and a fuller, harder handle.

Catenary length: The difference between the length of the shortest and longest component of a plied yarn or cabled chord after twisting.

Caterpillar: Point Rich Italian needlepoint lace of the 17th century, the caterpillar-like patterns are outlined with raised cordonnet and connected with brides picotees.

Catawba: A late maturing commercial variety of cotton from US, the staple measuring 22–25 millimeters, the yield being 35–36 per cent.

Catechu brown: A dye (also called **cutch**) containing **tannin** made from the bark of certain trees found in Asia and used in the tanning industry and in dyeing. The shade of brown derived from **catechu**.

Catena: White bast fibre, yielded by a species of the Heliocarpus tree in Mexico.

Catgut: An open, plain woven linen fabric, made of hardspun yarn and sized; used for embroidery.

Cathay: A bluish purple.

Cathay: An Indian striped satin.

Catherine wheel: An ornament in embroidery to fill up round holes.

Cation: Positively charged ion. Many chemicals used in textile processing are described as cationic, meaning that when the compound ionizes in solution, it is the positively charged ion that is "functional". Many surfactants are cationic, as are many chemicals used as fabric finishes. (Also see **Anion**.)

Cation exchange: See **Cationic exchanger.** Replacement of one ***cation*** by another—e.g. replacing calcium and magnesium by sodium or hydrogen ions in ***water softening*** by ***ion exchange***.

Cation exchange capacity, CEC: The ability of soil to exchange cations. It is measured in milliequivalents per 100 g of soil and ranges from 2 to 3 meq/100 g for sand up to 200 or more meq/100 g for clay and organic matter.

Cationic: Those that develop a positive charge on the water solubilizing end.

Cationic aftertreatment: Many dyes like direct, reactive which are having poor wet fastness, especially washing, wet ironing, cross-dyeing, water, perspiration fastness, are given caionic treatment to improve the fastness.

Principle: conversion of the anions of the dyestuff on the fibre into sparingly soluble or insoluble salts of the dyestuff acid.

Cationic dye: A dye which dissociates in aqueous solution to give a positively charged coloured ion.

Cationic dyeable polyester: Polyester fibres can be modified into cationically dyeable polyester fibres by the copolycondensation of terephthalic acid and 5-sodium sulphoisophthalic acid with ethylene glycol.

Cationic exchanger: Cationic exchangers (base exchangers). These are the most important ion-exchangers for water softening and are mainly high molecular weight polyvalent solid acids or their salts. They have acidic, positively charged exchange ions, i.e. acidic groups (SO_3H, COOH, OH) with mobile H+ or Na^+, e.g. of the type $–SO_3Na^+$ or $–SO_3H^+$.

Cationic pretreatment: This treatment – also called mordanting – is used with cellulose fibres in order to make them absorptive to cationic dyestuffs. Such mordants are tannin, sulphuretted phenols etc.

Cationic resin: An Ion excange material that can exchange cations, such as H+ and Na+, for ions in the surrounding medium. Such resins are used for a wide range of purification and analytical purposes. They are often produced by adding a sulfonic acid group ($–SO_3–H^+$) or a carboxylate group (–COO–H+) to a stable polyphenylethene resin. A typical exchange reaction is: Resin–$(SO_3–H)^+$ + NaCl → Resin–$(SO_3–Na)^+$ + HCl They have been used to great effect to separate mixtures of cations of similar size having the same charge. Such mixtures can be attached to cationic resins and progressive elution will recover them in order of decreasing ionic radius.

Cationic softeners: Cationic softeners are ionic molecules that have a positive charge on the large part of the molecule. The important ones are based on nitrogen, either in the form of an amine or in the form of a quaternary ammonium salt. The amine becomes positively charged at acidic pHs and therefore functions as a cationic material at pH below 7. Quaternary ammonium salts, retain their cationic nature at all pHs. The important types will be described in this section. An important quality of cationic softeners is that they exhaust from water onto all fibres. When in water, fibres develop a negative surface charge, setting up an electronic field for attracting positively charged species. These forces causes the cationic softener to deposit in an oriented fashion, the positive end of the softener molecule is attracted to the fibre surface forcing the hydrocarbon tail to orient outward. The fibre now takes on low energy, nonpolar characteristics; therefore, the fibre has the lowest possible coefficient of friction. Cationics are highly efficient softeners. The ionic attraction causes complete exhaustion from baths and the orientation

on the fibre surfaces allows a monolayer to-be as effective as having more lubricant piled on-top.

Cationic surfactants: These comprise a small group of surfactants that are mainly quaternary ammonium or pyridinium salts. As for anionic surfactants, these may be derived from natural fatty acids or from synthetic chemicals. They are used mainly as softening or dyeing after treatment and retarding agents. The long hydrophobic 'tails' of cationic agents, deposited as a film on the fibre surface, lubricate it and provide a much smoother and softer handle.

Cationically dyeable polyamide: See **Differential dyeing polyamide fibres.**

Catridge filter: A filter device used in effluent treatment etc. , usually disposable, filtering in the range of 0.1 micron, and usually 2 inches to 4 inches (51 to 102 mm) in diameter and 6 inches to 60 inches (152 to 1524 mm) in length.

Cattivella: Italian silk dress goods, made of fine floret silk .

Cattle hair: (cows' hairs). The most valuable from the technical spinning standpoint is the tail hair, similarly also curry comb hairs. In contrast is tannery waste hair, which is mainly used for felt and cheap coverlets etc., highly enriched with lime salts which have to be removed prior to finishing (dyeing etc.).

Cattle hair cloth: Commercial name for a stout twilled fabric, containing wool waste and some calf hair, heavy nap is raised by gigging; used for carriage robes.

Caungeantries: English changeable fabric, made of worsted and silk in the 16th century.

Caustic: Referring to a chemical that will "burn" skin; may be acid or alkali; in dyeing, caustic is also often used as an abbreviation for caustic soda (sodium hydroxide)

Caustic alkalies: Mainly Caustic soda; Potassium hydroxide.

Caustic discharges: See **Alkaline discharges**.

Caustic recovery plants: In the mercerising machine the fabric is treated with strong caustic soda for the process of mercerization and the balance caustic soda is washed off, by different methods as per the machine design. This caustic soda is usually evaporated in Caustic recovery plants to a required strength so that it can be reused. Usually caustic recovery plants work on less than atmospheric pressure to save energy (steam).

Caustic soda boil: A method of scouring cotton. In this process cotton fabric is boiled with a solution of 10 to 20 g/1 (3 to 6% o.w.f.) caustic soda in a kier

with a liquor ratio of 3:1. In continuous scouring about 30 g/1 of caustic soda is added in the pad-bath with a liquor pick-up of about 100%. In batch process the piece goods are treated in 4–6% sodium hydroxide for 8 h at 130°C (30 lb/in^2). Loose cotton for bandage and sanitary cotton, where absorbency is the prime importance, are boiled at 80 lb/in 2. In continuous processes, it is possible to decrease the time of post impregnation steaming to about 2 min. at a temperature of 130–135°C with sodium hydroxide solution of 40–60 g/1.

Caustic shock process: Reactive prints fixation process without using steam. Not very frequently used, the process is as follows: print fabric with printing paste, dry, pass for 20–60 s in open width through a strong, boiling alkali bath containing electrolytes (roller vat), and then wash off. Variants as steam-wet fixation processes for viscose: brief pre-steaming for 3–5 min before the caustic shock process produces a deeper shade on viscose.

Caustic soda: See **Sodium Hydroxide**.

Causticaire method: An old method for assessing the ripeness of cotton by treatment with alkalis of different concentrations.

Causticaire linear density, in cotton testing: The linear density (micrograms/inch or millimeter) of cotton fibres estimated from air flow measurements made before after treating with NaOH solution.

Causticising: Brief treatment of woven cellulosic fabrics with approx. 15–30° Baumé caustic soda without tension. The lye temperature is kept low to advantage approx. 10–20°C. Causticizing shrinks and compacts the woven fabric, and increases dye uptake in dyeing and printing particularly with reactive dyes.

Causticizing number: Test process which is based on the differing affinity of a mixture of green and red substantive dyes for untreated and causticized or mercerised cotton. Cannot be used in the presence of unripe fibres. The difference can be determined in figures by colorimetry.

CAV: Critical Add-on Value.

Cavalleys: Fine dyed cotton fabric, imported to England from Central America in the 18th century.

Cavalry twill: A rugged, very strong, smooth surfaced twill cloth with a clean double twill line. It is made with a pronounced 63 or 70 or 75 degree steep twill weave with a construction of about 100 × 60 using 2/36s worsted yarns in the warp and 6 run woollen yarn in the filling. Usually 60 in. finished width; it will have around 14 oz. per yard weight. In USA it is called Elastique. Traditionally this is a medium weight worsted or woollen cloth for hard

wearing clothes such as riding breeches and men's trousers. Now it is also made from cotton or viscose for sportswear.

Cavitation: In the context of textiles, cavitation is a problem which occurs in HT dyeing especially beam dyeing. In HT dyeings vapour pressure at 85–100°C increases so quickly that normal centrifugal pump action is no longer guaranteed. On the suction side, i.e. in the low pressure zone, liquid vapour tension can then result in the formation of vapour bubbles, reducing pump efficiency, which can fall to zero.

Cayenne: (1) A type of raw silk from Guyana: (2) Lightweight, loosely woven, unbleached French linen.

CC: (1) Coconut Fibre, (2) Cupro Fibres.

CCM: Abbreviation for: Computer Colour Matching.

CCS: Abbreviation for: Comisiade Standardisonea; Rumanian Standards Institute.

Ceara: Mexican and Brazilian raw cotton, having a fairly clean, medium strong, good, cohesive staple of dull white colour.

Ceba: Fine and silky cotton, grown in Mexico on the Ceba tree.

Cedar: A reddish-brown colour.

Cefiros: (1) Light cotton cambric in Colombia v often made with white or blue warp and white filling; (2) Cotton zephyr in Venezuela.

Ceiba fibre: A fibre used for stuffing pillows mattresses etc. Yellowish, silky seed hair, grown on the Bomibax tree in South America.

Celadon: A pastel green also referred to as Celadon green – Celadon, according to Partridge being a rustic lover in French pastoral poetry. Used in glazing Chinese porcelain. Celadonite is another name for **terre verte**.

Celafibre: Cellulose acetate fibre made in cut staple form. It is useful for blending with other fibres to make medium-weight fabric, blankets, etc. When mixed with other fibres in woven fabrics it may have a reduced tendency to creasing.

Celestial blue: A greenish blue.

Celestine: Sky blue.

Celestine: A woollen fabric, made in England under Edward VI., said to have been of light blue colour, and made with wide selvage.

Cellobiase: An enzyme occurring in malt, germinating spinach, oats etc., which degrades Cellobiose to glucose. It is encountered inter alia as a secretion

of certain bacteria particularly in fish nets, etc. See **Microbial damage to textiles**.

Cellobiose: Disaccharide produced on partial hydrolysis of cellulose, made up of two glucose units joined by a β,1,4 linkage. See **Cellulose.**

Cellophane: Transparent cellulose film. Practically impermeable for air, bacteria, organic solvents, grease, etc. Application: as packaging, bottle tops, adhesive tape, as safety glass,

textile fashion material and basketwork, etc. (Cellulose skin, Cellulose film)

Cellosolve: $C_2H_5O(CH_2)_2OH$, (ethylene glycol monoethyl ether), colourless liquid, practically odourless, miscible with hydrocarbons and water. Combustible. MW 90, density 0,93, b.p. 130–138°C, flashpoint 40°C, evaporation number 43. Does not dissolve acetate fibres. Uses: solvent in dyeing and printing for cationic, acid and indigo dyes, solvent for nitrocellulose, natural and synthetic resins.

Cellular: (1) Resembling or consisting of cells; multicellular = having many cells. (2) A term describing a fabric constructed so as to have close and orderly distribution of hollows or holes. In woven fabric this can be achieved by (a) honey comb (b) leno or (c) mock leno weaves.

Cellulase: An enzyme that catalyzes the breakdown of cellulose Cellulase enzymes are used for de-pilling and defibrillation of cotton fabrics. They can also be used to permanently soften cotton fabrics, as an aid in or replacement for stone washing of denim, and in methods for"peaching" cotton fabrics.

Cellulose: A polymer of a very large numbers of units, each of the general formula $C_6H_{10}O_5$ Cellulose is a structural polysaccharide made by plants. Essentially, units very similar to glucose are assembled into huge molecules that form strong fibres. Among cellulose textiles are cotton, linen, ramie, jute and hemp. Rayon is a man-made cellulose fibre (actually regenerated cellulose - natural cellulose is the starting material). Each unit of the cellulose molecule has a number of hydroxyl (–OH) groups. These are the binding sites for reactive dyes.

Cellulose acetate: (Acetate cellulose, acetyl cellulose, cellulose esters of acetic acid).Cellulose in which most of the hydroxyl (-OH) groups of cellulose have been replaced with acetyl (-$OOCCH_3$) groups Cellulose acetate is usually dyed with disperse dyes at a temperature of around 80°C to 90°C. It is quite easily damaged in alkaline conditions and loses its desirable lustre if boiled.

Cellulose acetate in textile printing: Used as thickening agent and substance carrier (Metal powders) which is fixed by heat (steaming), e.g. in Pigment printing.

Cellulose derivatives: Cellulose derivatives are mainly Cellulose ethers and esters. Examples of cellulose esters are cellulose acetates, Cellulose diacetates, Cellulose triacetates etc. and that of ethers are Cellulose methyl ether (Methyl cellulose), dimethyl cellulose, trimethyl cellulose. Ethers are used depending on the degree of alkylation, as excellent stiffening agent for sizes, finishes, print thickeners, also emulsifiers. Organic cellulose esters are very important for the manufacture of chemical fibres, monofilaments and foils, such as e.g. acetate cellulose and triacetate fibres.

Cellulose, degree of polymerization: The Average degree of polymerization of various cellulosic fibres is as follows:

Cotton approx.		3000–6500
Ramie	(>)	2700
Flax		2500–9200
Hemp		2200
Cotton, spun approx.		1200
Wood pulp		700–3000
Cupro filament		400–600
Viscose filament	(>)	200–460
Acetate filament		175–360

Cellulose esters: See **Cellulose derivatives**.

Cellulose ethers: See **Cellulose derivatives**. produced as a result of ethylene oxide and a small amount of alkali acting on cellulose. See **Oxyethylated cellulose.**

Cellulose glycol ether: (glycol cellulose, polyethylated cellulose),

$$\text{Cell-O-}C_2H_4OH \text{ see Cell-O}(C_2H_4O)_x\text{–}C_2H_4OH.$$

Cellulose glycolate: See **Carboxymethylcellulose.**

Cellulose methyl ether: (cellulose methyl ether), When the 3 OH groups existing in the cellulose molecule per glucose unit, the etherification using methoxy groups CH_3O can lead to mono-, di- and trimethyl celluloses.

Cellulose nitrate: Cellulose nitrates are sometimes erroneously called as Nitrocellulose. This is not a Nitro compounds but a cellulose nitrate. A typical ester of cellulose, with characteristic sensitivity when boiling with acids and alkalis. Not a homogeneous chemical compound, but a combination of various highly nitrified cellulose molecules. See **Nitrocellulose.**

Cellulose, oxyethylated: See **Oxyethylated cellulose, Cellulose glycol ether.**

Cellulose synthetic fibres: Old term for Regenerated fibres like Viscose. Now obsolete term.

Cellulose triacetate: See **Cellulose acetate, Triacetate Fibres.**

Cellulose trinitrate: (guncotton; nitrocellulose) A highly flammable substance made by treating cellulose with a nitric-sulfuric acid mixture. Cellulose trinitrate is used in explosives and in lacquers. It is an ester of nitric acid (i.e. not a true nitro compound).

Cellulose xanthate: It is an intermediate product in the manufacture of viscose from natural cellulose like wood pulp. First the cellulose is converted to alkali cellulose (Soda cellulose). This on reaction with carbon disulphide gives Cellulose xanthate. When Xanthate is dissolved in caustic soda Viscose solution is formed which then spun into Viscose fibres.

Cellulosic fibres: Cellulose fibres which contains mainly of cellulose units. This can be divided into three types. (a) Natural cellulosic fibres; (b) Cellulosic fibres, regenerated; (c) Modifications, such as e.g. Modal fibres.

Celsius scale: A temperature scale which places the freezing point of water at zero degrees, and the boiling point of water 100 degrees; formerly called centigrade.

To convert to Fahrenheit: $°F = (°C \times 9/5) + 32$ To convert from Fahrenheit: $°C = (°F - 32) \times 5/9$.

Celtic: A term used in Scotland to denote the hopsack weave, with a satin base.

CEMATEX: Abbreviation for Comité Européen des Constructeurs de Matériel Textile (European Committee of Textile Machinery Manufacturers), Zürich. Founded in 1953. Amongst other functions, CEMATEX is responsible for organizing the ITMA international textile machinery exhibition

Cemetery-kula carpet: Prayer mats with typical designs showing small houses, cypresses and pines in yellow ochre, pale red and light green on a dark blue background.

CEN: Abbreviation for: Comité Européen de Coordination des Normes (European Standardization Committee) with headquarters in Paris.

CENATRA: Abbreviation for: Centre National d'Assistance Technique et de Recherche Appliquée (Belgian Research Centre for Fabric Care and Drycleaning), Anvers/Antwerpen. Liquidated in January 1978.

Cendati: A medieval silk fabric made in Italy.

Centre Fibre: In bobbin laces the main vein of the leaves.

Centre loop: Kink.

Centering mark: See **Clip mark.**

Centiliter (cl or cL): **A** common metric unit of volume. One centiliter equals 10 cubic centimeters; this is about 0.61024 cubic inch, 0.3318 U.S.fluid ounce or 0.3519 British fluid ounce. In the kitchen, a centiliter is roughly equal to 2 U.S. teaspoons (or 0.704 British tablespoonful).

Centimeter (cm): (1) The basic unit of distance in the former CGS version of the metric system, equal to 0.01 meter. One centimeter is about 0.393 700 787 inch. (2) An obsolete name for the statfarad (approximately 1.11 picofarad), the CGS electrostatic unit of capacitance.

Centimeter (cm) (c): An obsolete name for the abhenry, the CGS electromagnetic unit of inductance. The abhenry is the same as the nanohenry.

Centimeter of mercury (cmHg): A traditional unit of pressure equal to 10 mmHg, 1.333 22 kilopascal, or about 0.193 pounds per square inch.

Centre back waist length, in body measurements: The vertical distance along the spine from the cervicale to the waist.

Centre front waist length, in body measurements: The vertical distance from the neck baseline at the centre front to the waist level.

Centre stitching: See **Double cloth.**

Centring, in designing: When a fabric design is organised in such a way that is balanced about the middle line of a fabric in a vertical direction.

Centrifugal damping machine: Centrifuge in which the material is pre-wetted or wetted during running, and where the wetting fluid is collected once more.

Centrifugal dust collector: A **centrifugal scrubber** or **cyclone** or **fan collector**, etc.

Centrifugal scrubber: A **wet scrubber** in which the gas swirls because it has been injected tangentially or has been directed around by stationary or moving swirl vanes.

Centrifuge: Also called hydro-extractors. Centrifuges are used for Water extraction (dewatering, pre-drying) of textile materials. Values of approx. 15% for residual moisture content can be achieved depending on the type of textile fibre. Most centrifuges have electric drives for speeds of approx. 750–1200 rpm and are generally provided with automatic control over various ranges. Centrifuges are also for removing water from crosswound yarn packages on individual heads.

Centrifuge dyeing: A process for dyeing, bleaching, washing, softening and centrifuging in one machine. The centrifuge, is suitable for the treatment of loose fibres (loose stock) as well as hanks of yarn in processing liquors. Most types of fibres in common use can be dyed by this process.

Centring device: (1) A designed roll or a guiding device to guide the fabric from trollies or batches to the processing machinery especially stenters straight into it without causing creases or skew.

(2) An electronic device installed at the fabric entry of a flat-bed screen printing machine to balance out any irregularities in the dimensions of woven patterns for printed hand towels, neckwear and headscarves by the formation of transverse folds in the border separation areas before the fabric is glued to the printing blanket.

Ceramic fibres: Industrially produced organically based fibres; artificial Mineral fibres. These include silicium oxide and silicium carbide fibres, and aluminium oxide and aluminium silicate fibres for example. They are all resistant to high temperature, and find use in special technical fields.

Cere Cloth: A cloth treated with wax; once used for wrapping dead bodies.

Cerise: After the French for cherry but not necessarily the same colour as the fruit. Often a bluish-red or a purplish red.

Cerule-, ceruleo- (L): Blue, sky blue, but in Roman times probably designated a yellow colour.

Cerulean blue: A vivid light greenish blue pigment made from oxides of chromium cobalt and tin discovered in 1860 by the firm George Rowney and Son.

Cerviacale To bust point, in body measurements: The distance from the cervicale around the base of the neck and down to the bust point.

Cerviacale to wrist, in body measurement: With the arm bent, the distance from the cervical to the shoulder joints, along the outside of the arm, over the elbow to the greater prominence on outside of the wrist.

CETIH: **A**bbrev. for: Centre d'Etude Technique de l'Industrie de l'Habilement, Paris and Lyon (French Centre for Technical Studies of the Clothing Industry);

Ceylon: A colour woven fabric for blouses and shirtings made from a cotton warp and cotton wool weft, containing little cotton.

CF: Abbreviation for carbon fibres.

CF Value: See **Comfort factor.**

Cha: Very light and thin Chinese silk cloth, made in plain weave but usually printed with very closely placed floral patterns; used for summer garments by the natives.

Chacart: Indian calico, printed with bright; multi-coloured checks.

Chadar or Chadder: (1) Plain woven cotton fabric; used for garments in Arabia. It has a very wide blue or black warp stripe on one side with two narrow white weft stripes appearing four times at intervals at the ends. The "width is about 40 inches and the length 100 inches; (2) East Indian shawl, made of wool or goat's hair, having woven figures on a solid ground; (3) Trade name in East Africa for half bleached cotton fabrics, imported from India; used for loin cloth.

Chadder ulaya: Native name in East Africa for half bleached, bordered cotton fabrics imported from England; used for loin cloth.

Chafe' mark: See **Abrasion mark**. In silk goods displacement of the fibres caused when the cloth is wet.

Chafe mark: (bruised place) A localized area where a fabric has been damaged by friction.

Chafed: A flaw in the cloth, caused by chafing the yarns.

Chafer babrics in tyre fabrics: A woven fabrics usually coated with unvulcanised rubber, which is laid around the bed of a tyre before curing.

Chafer fabric: External strengthening of the shoulder of car tyres, where the tyre and the wheel rim come into contact. In tyres with inner tubes flexibility, (shear) stability and adhesion are required; with tubeless tyres air has also to be prevented from escaping between the tyre and the wheel rim. Fabrics with coatings of adhesive applied to them are used.

Chaferconne: Fine Indian linen fabric, printed in colours (often with hand blocks) ; used for scarfs, mufflers and handkerchiefs.

Chaff: A component of trash in cotton in the form of a heterogeneous assortment of vegetable fragments most of them being small pieces of leaf, leaf bract and stalk. A component in cotton of trash (q.v.) in the form of a heterogeneous assortment of vegetable fragments, most of them being small pieces of leaf, leaf bract (a small form of leaf growing beneath the boll) and stalk. NOTE: Broken fragments of twig and small branches, particularly when brittle, may be broken up further in ginning and are then also regarded as "chaff". Another component of chaff is the silvery lining of the boll interior, sometimes termed "shale".

Chaffy Wool: Wool containing a considerable amount of chaff - finely chopped straw.

Chagrin fabric: (1) English book cloth, made of cotton; (2) Silk dress goods with pebbled surface resembling leather. (3) Narrow rich braid, made of silk or gold thread.

Chagual gum: Vegetable gum from Chile and Peru with a high content of _ Bassorin. It is found in various forms: voluminous pieces, crystalline, cylindrical and hollow, up to 15 mm in thickness. Chagual gum is only partly soluble in water. The insoluble component swells to form a crystal-clear gel with high refrangibility and low adhesive properties.

Chaguar: Strong leaf fibre, yielded by a species of the wild pineapple in Argentine; used by the natives for cordage, hammocks, .bags and also for weaving a sort of cuirass.

Chain, in stenter: On stenters: pin links are linked together into an endless chain for fabric transport purposes. Two chains (vertical or horizontal return) take up the fabric by means of pins or clips, passing it through the stenter processing zone.

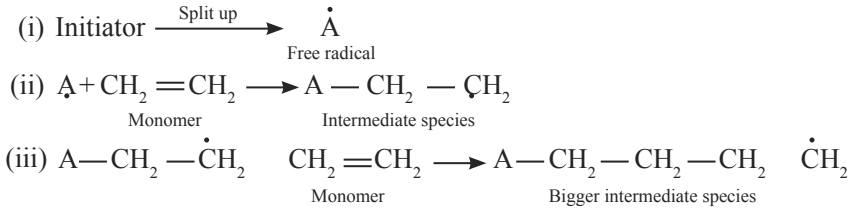
Chain Boulee: Part of the macrame, made by knitting two threads into a cord.

Chains, chemical: In long molecule chemicals **combinations** of atoms (chain atoms or chain units) covalently bound together in a row, and which are the basic structural elements of a series of molecules See **Chain molecules**.

Chain Cotton: Trade name for Brazilian cotton.

Chain fork: See **Lucet.**

Chain growth polymers: Chain growth polymerisation is a process of successive addition of monomer units to the growing chain by a chain mechanism. The monomer unit gets converted to some active intermediate species by a small amount of initiator such as organic peroxide or an acid or a base. Depending upon the conditions, the intermediate species may be free radical or an ion, and it reacts with other monomer unit to form still bigger intermediate species. The monomer units are, thus, successively added to intermediate species by a chain process. The chain growth polymerisation of ethane involving free radical initiation is given below:

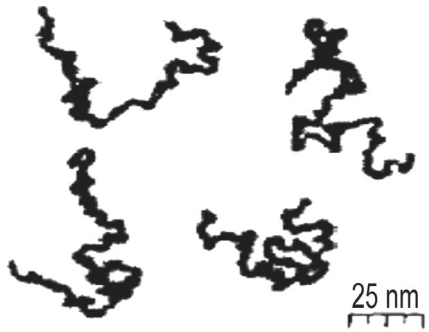


Chain, in Zippers: The linkage formed by interlocking the scoops of two stringers.

Chain length: The greatest molecule length produced with the greatest possible extension of the macromolecule (zig-zag chain) whilst maintaining bond angle and the atom spacing. Polymer bulk properties may be strongly dependent on the size of the polymer chain. Like any molecule, a polymer molecule's size may be described in terms of molecular weight or mass. In polymers, however, the molecular mass may be expressed in terms of degree of polymerization, essentially the number of monomer units which comprise the polymer. For synthetic polymers, the molecular weight is expressed statistically to describe the distribution of molecular weights in the sample. This is because of the fact that almost all industrial processes produce a distribution of polymer chain sizes. Examples of such statistics include the number average molecular weight and weight average molecular weight. The ratio of these two values is the polydispersity index, commonly used to express the "width" of the molecular weight distribution.

The maximum length of a polymer chain is its contour length.

Chain linearity: The simplest form of polymer molecule is a straight chain or linear polymer, composed of',a single main chain. The flexibility .of an unbranched chain polymer is characterized by its persistence length.



Appearance of real *linear* polymer chains as recorded using an atomic force microscope on surface under liquid medium. *Chain* contour length for this polymer Is -204 nm, thickness Is -0.4 nm

A branched polymer molecule is composed of a main chain with one or more substituent side chains or branches.

Chain plan: Weaving technology term, same as Lifting plan, Peg plan.

Chain stitch: A stitch formed with one or more needle threads and characterized by interlooping. One or more loops of thread are passed through the material and secured by intralooping with a succeeding loop or loops after they are passed through the material. The chain stitch when perfectly done should look like the stitch made by a single-thread machine. This stitch is

made by taking the thread toward the worker, and before the needle is drawn out of the cloth the thread is held by the thumb under the point of the needle, as in a buttonhole, making a loop. The needle is inserted in the last loop for the next stitch. The chain stitch is used in modern embroidery as an outline and for darning, but in old embroidery, the outline and chain stitches were used for filling as well. They are found in Persian, Indian, and Italian Renaissance work. Like the feather stitch, the chain stitch is worked towards the worker.

Chain thickness, In Zippers: The measurement from the front to the back of the chain.

Chain twill: An ordinary 3 × 3 twill.

Chain Twist: Yarn first made two-ply to which a third ply is added with a reverse twist.

Chain warp, in floor coverings: Warp threads usually woven in pairs alternating over and under the shotts which are then bound and which enclose the stuffer yarns and the tufts or loops forming the pile.

Chain weave: Piece dyed worsted fabric, finished without any nap, woven in double corkscrew.

Chain width, in Zipper: The measurement from the shoulder to shoulder of the interlocked scoops.

Chain, in Zipper: An assemblage formed by interlocking several elements of two stringers.

Chain-polymerization: See **Addition Polymerization.**

Chain-transfer: A reaction in which a free-radical abstracts an atom or group of atoms from a solvent, initiator, monomer or polymer.

Chain, on stenters: The unit in stenter on which the clip is fitted which in turn holds fabric on both the selvedge and taken through the Chambers and to the delivery side of the stenter. Normally there will be two chains in on stenter which is driven by one motor or two separate motors.

Chainette: A tubular cord produced on a small circular knitting machine using more than 20 needles.

Chair web: A woven narrow fabric. Traditionally 50–85 mm. (2–3½ in. wide) for supporting the upholstery springs of the chairs , couches etc.

Chaising calenders: the arrangement of rollers in chaising calenders allow the fabric to be wound several times inside the calender in a number of layers ranging from 5 to 13. In this way the pressure is not exerted directly by the flat surfaces of the cylinders but by the fabric itself. The warp and weft yarns carry out a progressive rounding action; the result is a precious lustrous effect, a

more bulky, full and compact hand, similar to the one obtained with mangling calenders.

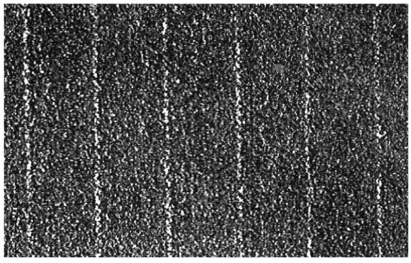
Chakhi: A warp faced fabric, made of silk warp and cotton filling; used in Egypt.

Chakmak: A Turkish fabric, made of silk, often with cotton filling, and interwoven with gold thread.

Chalk: A grey white.

Chalk: Calcium Carbonates. Used for marking. A piece of soft rock used for drawing or writing; a filler or **extender** used in manufacturing pigment or priming canvases.

Chalk Stripes: General term for narrow white stripes broader than pin stripes over a dark ground. Usually woven wool fabrics for suits and costumes. Stripes may be partially obscured by raising. Can also be printed



Chalk, tailors: A piece of flat pipe clay, either square or triangular in shape used marking cloth, colloquially known as clay.

Chalk-white: The white of chalk.

Challis: Originally made with silk warp and worsted weft, Challis is made in plain weave. A soft light weight fabric in slightly open plain weave with a soft handle like voile. This light weight fabric, is either dyed or printed. Nowadays Challis name is used for other fibre fabrics also. Worsted yarn makes a beautiful dress weight challis. It may also be wool with polyester or polyamide and sometimes with spun rayon also. Cotton challis has a slight nap to achieve the soft finish. Used for full veils, dresses, blouses, children's clothes, baby dresses. It gathers well and takes unpressed pleats. May be plain or printed; may need lining in paler colours. It crushes in wear but sheds creases overnight. A typical construction may be 50 square to 70 × 60 with 30s spun rayon warp and 14s to 30s spun rayon weft. Another construction of 66 × 50 with 30s warp and 20s filling is also challis. The width varies from 40-56 in.

Chalon: All-wool, twilled light English suiting and dress fabric, calendered on the face, and usually made in black, about one yard wide.

Chalybd- (L): Steel.

Chalybeous: Having a dark blue metallic colour.

Chalys: See **Challis.**

Chamare: Decorative loose coat with large collar and broad sleeves.

Chambers: An old commercial variety of cotton from US, the late maturing staple measuring 22-25 millimeters, the yield of lint being 32 per cent.

Chambery: Very light French dress material made of silk or manmade fibre warp and worsted weft in twill weave.

Chamblette: Seventeenth century English pure or silk mixed worsteds, watered or plain.

Chambord: French mourning dress goods, made of all-wool. The warp sometimes contains silk or is made of cotton. It is woven with ribbed effect, often with alternating heavy and light ribs.

Chambray: (1) A shade of blue. (2) Plain weave, durable cotton fabric, with the mottled look, similar to denim, of white weft and coloured warps. Striped and checked as well as plain and even sometimes in dobby designs. A characteristic construction is 72 × 56 with a width of 30-40 in. depending on the quality 30s carded yarns or 40s combed yarns may be used. Medium and heavy chambrays are used for men's work shirts while lighter grades are used for women's and children's clothes, shirts, pyjamas.

Chambray Gingham: Fine cotton gingham, given a glossy finish; comes mostly in solid colours.

Chambre' fabric: Chambre' are made of 50:50 polyester/cellulose in which the warps are made of cellulose and the wefts of polyester. They are dyed with reactive dyes first, the polyester remaining undyed, and then printed with disperse dyes.

Chamfering: (1) Removing the edges of cross-wound bobbins before dyeing in order to avoid dark patches. Done by hand or using chamfering machines.

(2) A slight tapering off done on the rubber rolls of a mangle while grinding to take care of the bending of the roll when pressure loading is done and to get even pressing on the fabric.

Chamois: The yellowish-tan colour of a chamois leather.

Chamois: Originally the skin of the chamois, the small mountain goat, but now also from deer, sheep and goats. The skins are dressed with oil and give a suede finish on both sides. It is very soft and easy to sew. Fabric is napped, sheared, and dyed to simulate chamois leather. It is stiffer than kasha and thicker, softer and more durable than flannelette. Must be designated as "cotton chamoise-colour cloth". Uses: Dusters, interlining, storage bags for articles to prevent scratching.

Chamoisette: Made in cotton, rayon and nylon etc., knitted, double knit construction. Characteristics: A fine, firmly knit fabric. Has a very short soft nap. Wears well. Nylon chamoisette is more often called "glove silk". Uses: Gloves.

Champ: Same as **Fond.**

Champagne: Yellowy-white or yellowy-pink; a 1920's mink colour.

Champion Cluster: An old commercial variety of late maturing American cotton, the staple measuring 25-28 millimeters, the yield of lint being 30-31 per cent.

Chance causes: Factors generally numerous and individually of relatively small importance, which contribute to variation, but which are not feasible to detect or identify.

Chandar: Unbleached, bleached, dyed or printed cotton cloth, sold in India earlier.

Chandokhni: A bandhini design. See **Bandhani.**

Chandul: East Indian fibre, yielded by the Lepuranda succidora; used for bagging.

Change in filling: See **Mixed filling.**

Change in length on twisting: The difference in length occurring due to the twisting of a specimen.

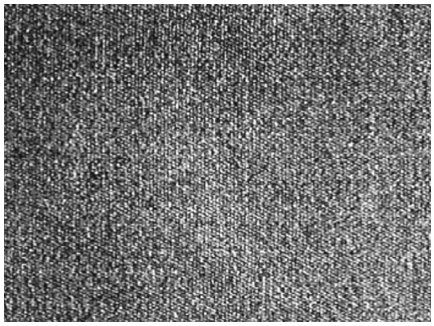
Change in length on untwisting: The difference in length occurring due to the untwisting of a specimen.

Change of shade, in colourimetry: For colourimetric change of shade evaluation, the fastness rating is calculated from the colour difference between the dyeing subjected to the fastness test and the original dyeing.

Change, process: A generic term used for the alteration of weight, etc. of fabric, yarn or fibre subjected to a certain process.

Changeable: Effect A colour effect extensively applied in silk fabrics, produced usually by weaving the cloth of different coloured, yarn dyed warp, and weft.

Changeant: Fabrics made of natural silk or synthetic fibres, in which the warps and wefts are different colours. Filament yarn fabrics are usually piece dyed in a single bath process, viscose or cupro being the first fibre and acetate



filament the other. The changeant effect is most effective in plain weave fabrics when the moving light-dark contrast of the individual components effectively enhances the changing colour effect to give an attractive interchange when the angle of incidence of the light changes. Used as clothing, overcoat or lining material.

Channel: A narrow passage formed between plies of material in a garment or by attatchment of an additional ply of material, usually to house a draw cord.

Chantilly lace: Originally a silk bobbin lace with a very fine spidery ground. Well spaced isolated decorative motifs are applied in a heavier thread and outlined. Iy is now made by machine in nylon, viscose and mercerized cotton. Often used for bridal veils.

Chapands (French): Waste silk from native reeling akin to charka silk waste.

Chaperon: Close fitting hood with shoulder collar and tail.

Chaple silk yarn: Silk yarn spun from inferior cocoons and silk spinners waste.

Chappe: See **Schappe Silk.**

Char length: Length of the torn, carbonised area in Flammability testing (vertical test). It is determined after the recorded afterglow period on the same test sample. 89 mm is the required average limit value for textiles with flame retardant finishes (mean value of 10 measurements); the max. individual value is 114 mm.

Character: The evenness, distinctiveness, and uniformity of crimp characteristic of their respective wool classes. A well-bred wool of 'good character' will usually show a pronounced crimp and distinct staple formation.

Charactertistic: A property of items in a sample or population which, when measured, counted or otherwise observed, helps to distinguish between the items.

Charara: Long staple cotton grown in Egypt.

Charcoal: A dark grey colour.

Charcoal brown: A dark brown.

charcoal grey: A dark grey.

Chardonnet silk: Thick soft silk yarn consisting of two or more strands twisted together in one direction, each strand being made of a number or singles loosely twisted in the opposite direction.

Chardonnet, H.: Father of rayon, whose research in producing what was then called artificial silk from nitrocellulose, paved the way of industrial manufacture of rayon. (French, 1839–1924.)

Charkha: A simple hand operated Indian crude contrivance for reeling raw silk. It conists of a large cooking cum reeling pan where boiling water is kept. The cocoons are cooked in it and filaments collected in a bunch after brushings are passed through a hole on an ordinary thread guide device. Later the thread is crossed with another co-thread for forming a chamon type croissure. Then it is passed through a distributor before it is wound on to standard wooden reel. Four ends are maintained in this device. One person sitting near the cooking pan manipulates the cocoon cooking amd reeling.

Charkha silk: Raw silk on reeled on charkha.

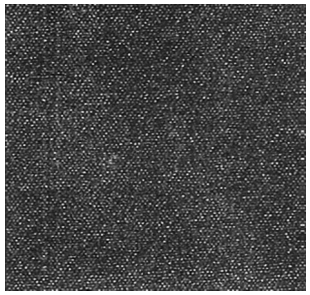
Charkha silk waste: It is the silk waste produced during reeling on charkha

Charkhana: Checked muslin of cotton and silk or pure cotton in India, four-ply coloured threads, forming the checks.

Charleston: Womens dress for evening wear with straight unwaisted line, often with fringes; named after the fashionable dance.

Charly: It is a Copper man of size 50 at the Hohenstein clothing physiology institute and can imitate the temperature regulation of a person (Clothing physiology): the legs can be moved at the hip and knee joints and the arms can be moved at the shoulders and elbows, it can sit, lie, stand and also imitate walking and running movements. It is heated by warm water (pipe system). External evaporation can be measured with water (body cooling, sweat evaporation). A complex control system is used for comparative clothing studies, physiological work measurements etc.

Charmelaine: A soft worsted fabric in twill or satin weave with a lustrous face and matt reverse. The lustre is developed by shearing and pressing. Used for women's outerwear.



Charmante satin: A double wefted fabric, the face being a ½ twill and the back a weft sateen developed from the thick low twist weft.

Charmelaine: Womens dress goods of very fine worsted yarn in satin or diagonal repp weave, back of fabric with long warp floats gives elegant draping properties Uses: for party and evening dresses dyed in piece. A 1/2 twill fabric made from botany wool warp and weft that has a rtwill nep effect by virtue of a high sett two fold fine warp and a low set thick hard twisted weft is a Charmelaine.

Charmeuse: A silk, cotton or viscose satin weave fabric with a dull back and a semi lustrous right side, may sometimes be a mixture of fibres. Creasing fabric, it is not hard wearing. It is soft in feel, drapes very well and used in ladies wear.

Charmoy: Indian ribbed silk fabric.

Charring: The formation of carbonaceous residue as the result of pyrolysis or incomplete combustion.

Chartreuse: (1) A pale apple-green colour with a yellow tinge; a colour name adopted by Web page creators on the Internet; see **X11 Colour Set**. It has hex code #7FFF00.

(2) A very light silk satin crepe with a pebbled effect on the back; the face is finished with a high lustre.

Charvet: Soft fabric of silk or acetate in a diagonal rib weave, often with crosswise stripes of alternate dull and satin finish. Used for making ties.

Chase: The conical part of the body of yarn in cop, bobbin or pirn form on which the thread is coiled during the traversing cycle.

Chasing calendar: Chasing calendars are similar to swizzing calendars. The major difference is that the thread-up is such that the cloth makes several passes through the nips before it exits to a take-up roll. This is done by having cloth pass over chasing rolls which feed it back through the nips. The cloth

is compressed against itself with as many as 5 to 6 layers being in a nip. This gives the cloth a thready-linen appearance and a soft special feel.

Chasselas: Cotton cloth in the West African coast.

Chasseur-blue: The dark blue colour of the jacket of the French Chasseur soldier.

Chassum: A term popular in west Bengal, India, to denote the silk waste obtained during reeling of cocoons from polyvoltinne races, for example, Bengal Chassum.

Chatoyant: French for shot colours.

Chats: Fulled French woollen, made with white warp and blue or black filling; Obsolete.

Chattan: An old Highland tartan, it is composed as follows: narrow black and white line; wide dark green stripe; white line; yellow, red (split with black line) and yellow stripes of equal width, these three together being as wide as the green; white line; gray stripe, somewhat narrower than green; black stripe, being half the width of the gray; red stripe, same as black ; yellow stripe, same as gray, split with a white line; repeat, in reversed order, group described between two; red bar, one third in width of entire group.

Chaussettes: An old white thread hosiery made in Vitre, France, by the peasants.

Chavonnis: A good quality sheer Indian cotton muslin.

chay, chaya, choya, shaya, shaii: A red dye made from the root of the Indian plant *oldenlandia umbellata* which is of the same family as the **madder** plant.

Chayong: A corded silk velvet from China.

Chebka: Hand-made lace from Tunis, made with Moorish designs; used for dresses and furniture.

CHC process: Caustic soda treatment for polyester knitgoods to improve the surface characteristics.

Check canvas: Open embroidery canvas containing double and single threads, both in the warp and filling, which produce a plaid-like effect.

Check pattern fabric: (Shepard's checks) Colour pattern obtained in a fabric by using 4 pale and 4 dark threads in the warp and weft, woven in twill. Pied de poule fabric is made by using the same colour sequence, but panama weaves, for men's shirts.

Check spikes: Free standing steel spikes 15–20 cm high which are placed at important marking points on a lay, usually the corners of check patterns in order to ensure that the checks match each other when cut.

Check spring: A spring with a loop at one end through which the thread passes through. It takes up the slack in the needle thread during stitch forming and assists the take up in setting the stitch.

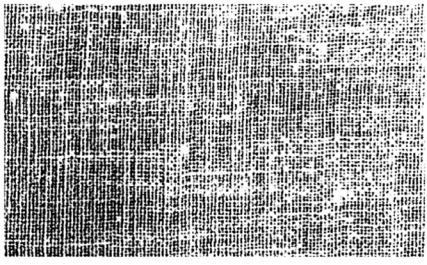
Checked muslin: White muslins with coloured cord stripes or checks and plaids; used for dresses, curtains, etc.

Cheda: Indian term for any fabric used as leader cloth etc.

Cheek: The end flange of a filled mangle bowl.

Cheese: (1) A cylindrical package of yarn cross wound on to a flangeless support. (2) Cheeses refer to the spirals of pencil roving produced on the large mechanized carders. The fibres can be knit as is or can be spun up.

Cheese cloth: A gauze made from soft and loosely woven cotton of low count and therefore sheer. Its natural colour is cream but it can be bleached or dyed. It is of a plain weave, sometimes heavily sized, and has rough finish and wrinkled look. A typical construction may vary from 20 × 12 to 48 × 44, 30s carded cotton warp and 40s carded cotton weft. An all-cotton fabric, cheese cloth is one of the cheapest woven fabric. It is not hardwearing but washes well. Originally used for wrapping cheese and for making polishing cloths,



and sometimes as a mounting or underlining fabric. Low grade cheese cloth nowadays is used as dust cloths other uses are in bandages, in tobacco fields to diffuse strong sunlight and other uses. Hence this cloth is also called Tobacco cloth. Higher grade cheese cloth, often using two ply yarns are called scrim and are used as an inexpensive curtain and apparel fabric. When it became a fashion fabric, the quality was improved and the texture made slightly closer. Fashion cheese cloth contains some polyester.

Cheese warp: Parallel threads in the form of a leased twistless rope wound mechanically with a quick traverse on to a spool in the form of a large cheese.

Chelais: Plain woven cotton fabric; used for loin cloths and scarfs in East India; it is made with a checked or striped border and a wide heading.

Chelate: An inorganic complex in which a ligand is coordinated to a metal ion at two (or more) points, so that there is a ring of atoms including the metal, i.e. a metal-complex. The process is known as Chelation.

Chelate resist printing: A process for the production of resist prints on polyester whereby functional groups such as –OH, –NH, –COOH, >C=O or >NH in disperse dyes are able to form chelates with heavy metal cations such as Cu, Cr, Co, Fe or Al from the corresponding heavy metal salts. Penetration of disperse dyes into the polyester fibre is prevented by chelate formation. The best results are obtained with copper compounds in the following order: copper acetate, formate, sulphate and phosphate.

Chelating agent: See **Sequestering agent.** A molecule usually organic, which is soluble in water and undergoes reactions with metal ions to hold them in solution. A number of naturally occurring organic materials in water have chelating ability, such as humic acid, and lignin. Due to their chelating abilities, some organic materials interfere with water softening process.

Chelation: See **Chelate.**

Chemical affinity: It is the driving force behind chemical reactions that results in mutual absorption and reactivity, such as e.g. between a fibre and a dyestuff or textile auxiliary (Affinity, dye affinity). The affinity between reactants generally increases with differences in the electrochemical characteristics (Electrokinetic interfacial potential).

Chemical crimping: Crimping of synthetic fibres by chemical methods

Chemical decatizing: Finishes of a chemical nature to impart form retention, in contrast to normal decatizing which involves mechanical and/or physical treatments

Chemical embroidery: See **Burnt out styles.**

Chelem: A variety of Sisal from Yucatan.

Chelos: East Indian calico shirting, printed with fancy coloured checks or plaids.

Chemical fibre: One which is not made by nature, as the vegetable and animal fibres are, but which are produced artificially through chemical process, like the artificial silk.

Chemical finish: Chemical material other than colorants and residual processing chemicals added to textiles to impart desired functional or aesthetic properties to the textile product.

Chemical finishing: Finishing of fabric using various chemicals to impart particular handle, softness, sheen, weight.

Chemical fixation: Stabilization of a polymer state by crosslinking with bifunctional reagents.

Chemical oxygen demand: The COD value is the formal oxygen requirement in the reaction with the strong oxidizing agent, potassium dichromate. To determine the COD of all oxidizable organic components, the sample is boiled in a strong sulphuric acid medium with an excess of potassium dichromate ($K_2Cr_2O_7$). After 120 min. under reflux, the solution is cooled and back titrated with ferrous ammonium sulphate ($(NH_4)_2Fe(SO_4)_2$) solution. The amount of potassium dichromate consumed is proportional to the amount of oxidizable organic material in the sample.

Chemical pad: Padder used exclusively for the application of chemicals Chemical stability.

Chemical wash in rug cleaning: A specialised process for oriental rugs.

Chemically enhanced backwash, CEB: The use of chemicals in the backwashing of **microfiltration** or **ultrafiltration** membranes. The chemicals that are used depend on the type of material that has to be removed from the filter and the type of filter material. Examples include hydrochloric acid, hypochlorous acid, hydrogen peroxide, sodium hypochlorite or sodium hydroxide. This process is also known as clean in place (CIP) or chemical clean.

Chemically enhanced primary sedimentation: The addition of ***alum*** or ***lime*** or ferrous sulphate or polymers to a wastewater can enhance the removal of solids to give up to 80% removal from domestic wastewater during ***primary sedimentation.*** The ***surface loading rate*** of the primary sedimentation tanks can be increased to 50m3m_2d_1 at maximum flow.

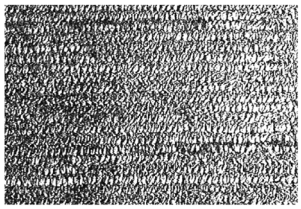
Chemically precipitated sludge: Sludge that is produced in a water or wastewater treatment works when ***coagulation*** has been used to help sedimentation or clarification of suspended matter.

Chemichromism: Chemichromism is a term which has been introduced to describe a change in colour, caused by a chemical conversion, induced by some external stimulus, for example exposure to light, heat or electric current. Probably the most familiar and longest-established use of reversible colour change chemistry is found in titration indicators. As an example, the azo dye, methyl orange changes from orange to red in the pH range 3—4, due to conversion into the protonated species.

Chemise: Light women's dress with high waist, puffed sleeves, décolletage, train.

Chenille: From the French word for a caterpillar, this is exactly what it resembles. A yarn is made, with pile protruding all round, by cutting a ladder

like fabric into strips, so that the ends of the soft twisted yarns loosen and form pile-like fringe. This fringed yarn is then woven in a gauze weave in a gauze



weave to make a fabric with a pile on one or both sides. Fibres used may be silk, viscose, cotton, wool or mixtures. Used for furnishings, curtains, chair covers and specially finished chenille is also made for dresses and coats.

Chenille: These hand sewing needles are with large eyes and sharp points are often used for silk ribbon embroidery Sizes range from 18 to 24.

Chenille axminster carpets: A cut pile carpet, made by binding printed chenille thread from side to side, to the foundation.

Chenille cloth: A fabric made with cotton wool or silk yarn warp and chenille filling; used for millinery.

Chenille lace: French needlepoint lace of the 18th century; it has a hexagonal silk net ground with patterns outlined with white chenille.

Chenille shawl: Made originally in England with chenille weft.

Chequer stitch: Used in bobbin lace springs as filling for berries and flowers.

Cherolee: Indian striped cottons.

Cherconnee: Indian silk and cotton taffeta; made with stripes and checks.

Cherquemolle: An old Indian fabric made of bast fibres mixed with silk.

Cherry: Commercial variety of early maturing cotton from South Carolina, the small bolls yielding 30-32 per cent lint, the staple measuring 18-22 millimeters.

Cherry: Bright red; the colour of cherries; hence cherry-coloured. See **Cerise**.

Cherry-red: Of the colour of the red cherry.

Cheshire: Plain woven bleached cotton fabrics, made in England, 36 inches wide, with 76 ends and 88 picks per square inch; used for calicoes.

Chessboard Canvas: Stout white embroidery canvas with alternate Checks, woven plain, and in honeycomb.

Chest: See **Chest girth.**

Chest girth, in body measurements: The circumference of the body over the shoulder blades, under the arms and across the upper chest.

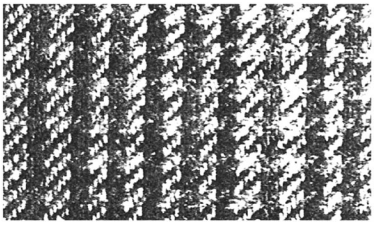
Chest piece: An additional layer or layers of interlining in the front shoulder area.

Chestnut: Reddish-brown after the name of the shell of the chestnut.

Chestnut-brown: A reddish-brown.

Cheverett: A worsted suiting made in Britain in the Seventeenth Century. Obsolete.

Cheviot: Rough, fuzzy surfaced woollen suiting similar to tweed. The name was originally given to the rough wool from the sheep on the cheviot Hills. It is plain or twill weave, which is very hard wearing because of the rough,



uneven yarn, but looses shapes in wear. Excellent for men's hard wearing suits, and sporting clothes, golfing skirts etc. Lighter cheviots are made from finer and softer woo, made in plain weave and in right hand or broken twill weave. A good use for Cheviot is for sports jackets.

Cheviot Britch: Britch wool from the cheviot fleece.

Cheviot fabrics: Twill, zig-zag twill, plain and fancy woven fabric using Cheviot wool but today mostly made from crossbred wools, in other words wools of a relatively coarse nature. Cheviot fabrics are made from either worsted or woollen yarns. Cheviot fabrics are primarily used in menswear.

Cheviot Shirting: Stout, twilled cotton shirting made of coarse yarn; the pattern consists of small dobby designs or fancy warp stripes, formed by single warps and ribs by double warps. It comes usually in blue or brown, while the filling is white.

Chevrette: Hair obtained from the skin of the Angora kid by a liming process.

Chevron: French serge dress goods, made with eight leaves and four picks in a repeat.

Chevron stitch: An embroidery stitch. Method: Bring the thread through on the lower line at the left side, insert the needle a little to the right on the same

line and take a small stitch to the left emerging half-way between the stitch being made. Next, insert the needle on the upper line a little to the right and take a small stitch to the left as at insert the needle again on the same line a little to the right and take a small stitch to the left, emerging at centres. Work in this way alternately on the upper and lower lines. The stitch may also be worked on even weave fabric.

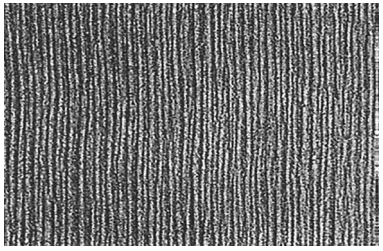
Chianti: A dark cerise colour after the wine from Tuscany.

Chica: Orange-red dye from South American plant.

Chichi Rugs: All-wool rugs made in Caucasia; the pile is of medium length, tied in Ghiordes knot. The colours are dark, blue is often used. The pattern consists of irregular and varied figures in the field, of crosses, conventionalized flowers and geometrical designs. There is a wide border of several stripes. Both ends are finished with a narrow knotted fringe.

Chicopee nonwovens: Stabilization of nonwoven fabrics by water jets (making holes); a binder is also necessary.

Chiffon: A plain weave, soft, filmy material. It may be made from silk of the finest lightly twisted yarn, woven in gum condition, degummed after weaving. It is also made in nylon, viscose, cotton, and polyester. Although thin and sheer it is fairly strong, but it may give at the seams.



Used for loose fitting garments, such as blouses, nightwear and as an evening overdress on top of a dress of satin, taffeta, lamp shades, millinery and for decoration purposes etc. Not expensive, silk chiffon is softest, polyester chiffon is slightly firmer, and less transparent. To manufacture chiffon S and Z twist crepe yarns are used in the warp and weft. Fine 50 denier yarns can be used in square construction ranging from 60 square up to 80 square.

Chiffon, silk: A very light, sheer, open mesh fabric made from hard twisted yarns. Silk chiffon is made from raw silk in both warp and weft directions The yarns are highly twisted and creped , ranging from 50-100 twists per inch (TPI).Warp of down silk or greige, weft of crepe with an S twist, slightly transparent article with a bark effect along the length.

Chiffon net: In England a very fine grade of black silk net; used for laces.

Chiffon twist: Hard twisted, single, raw silk thread having twist in the range of 2000 to 4000 twists per metre (TPM) used for making chiffons, mousseline de soie (French) etc.

Chiffon velvet: A very light, soft velvet with little substance to it. It is floaty and effective but very difficult to sew. It has a short cut pile.

Chijimi: A narrow Japanese silk fabric of solid colour; used for drapery.

Chikan: Hand embroidered fine cotton muslin in India.

Chikankari: A subtle, sophisticated style of embroidery traditionally worked with white threads on fine white cotton. Since the colour palette was earlier limited to white on white, it was through the incorporation of different stitches that varied effects created on fabrics. Some of these stitches are worked on the surface of the fabrics, some from reverse, while others pull at the threads to create a net effect. Now, chikankari is worked with different colours on coloured fabric is well suited for summer wear.

Chikti: Soft, strong, glossy 'fibre, similar to jute, yielded by the Triumfetta rhomboidea in India.

Chikun: Fibrous bast of the Indian nettle tree, used for clothing by the native tribes.

Chilima: Very strong bast fibre, yielded by the Bombax tree in Peru.

Chilkaht: Blanket woven 'by the Chilkaht Indians in Alaska of the hair of the mountain goat. The colours are yellow, black, white, blue and red, usually with a black border around. The blanket has a deep fringe at the bottom and narrow at the sides. The designs usually consist of eyes and faces.

Chilli-red: A strong red colour

Chimayo: Woollen blankets woven in New Mexico and Mexico by the Indians. The design consists of straight cross stripes in blue, black, red and white; formerly woven in two pieces which were sewn together, now made in one piece of two-ply yarn.

Chin: Brocaded silk fabric made in China.

China: Jute Bast fibre of the Indian mallow.

China blue: A lavender blue.

China crepe: See **Crepe de Chine.**

China grass: Sometimes called Grass Linen. An old Chinese fabric woven from vegetable or bast fibres. An uneven weave, but very fine transparent

fabric once used a great deal in china as a basis for embroidered table linen. Very similar in appearance to pineapple cloth.

China Mull: Very soft, light, plain woven fabric, made of cotton and silk.

China silk: (1) A white raw silk yarn of superior quality from north China.

(2) See **Japanese silk.** Originally hand woven in China of silk from the Bonabyx mori. Very soft and extremely lightweight but fairly strong. Irregularities of threads caused by the extreme lightness and softness are characteristic of the fabric. Uses: Mostly for linings and underlinings, and could be used for blouses.

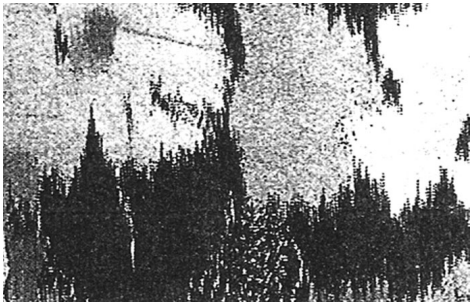
(3) A plain weave, lustrous, light weight silk fabric produced in china and Japan. The threads are irregular and soft. It is dyed or printed and used for blouse, lingerie, linings etc. The fabric was originally hand- woven in china of mulberry silk, as early as 1200BC. The term raw has been applied to machine –made imitations in other countries.

China Steam Filature: Very brilliant, strong and white and regular raw silk, reeled in 13/15 deniers in northern China on modern machinery. Graded in 3 classes; Nos. 1 and 2 for organzine; No. 3 for tram.

Chinchilla: A woollen knitted fabric with a napped surface.

Chinchilla cloth: This is made to simulate the fur of Chinchilla rodent. It is a wool coating, in thick twill weave with a napped surface rolled into little curly balls by a special rubbing machine. Its chief characteristic is its spongy feel; it is not heavy or dense. Fairly expensive. Used only for coat and capes.

Chine: General term for various designs or colours printed in faint and indefinite outlines on the warp before the weaving of certain fabrics, as taffeta, gros de Tours, serges and satins. In warp pile velvet the design printed on the warp is about six times the length of the pattern seen in the finished fabric, owing to the "take-in" during the weaving.



Chine' printing: Warp printed (shadow printed) See **Warp printing.**

Chinese blue: A blue pigment made from mixing **cobalt blue** with **flake white**. Synonymous with **Prussian blue.** Also Chinese white, orange and yellow; all originating in China according to Partridge although **Prussian blue** was discovered in Berlin.

Chinese Burr: Triumfetta pilosa of Queensland, Australia; yields a clean, etrong, lustrous, soft and fairly resilient fibre, similar to jute.

Chinese Jute: White, lustrous, fairly strong 'fibre, yielded by the Indian mallow.

Chinese mink: See **Mink.**

Chinese red: A chrome red pigment. Obsolete name for **cinnabar**.

Chinese rugs: Antique Chinese rugs were made with the Persian or Senna knot, making possible a large number of knots per cm and a close shearing of the pile. Later, rugs were made with large, coarse designs and a deep pile. In more recent years, Chinese rugs have been made in plain colours as well as in the floral and dragon patterns characteristic of Chinese design. The pile of Chinese rugs is unusually deep, making these rugs remarkably durable.

Chinese vermilion: A vivid yellow-red pigment.

Chinese white: A white pigment prepared from zinc oxide and possibly so named after the fine porcelain from China. This was the first permanent opaque white water colour. See **zinc oxide**.

Chinese yellow: A vivid yellow pigment made from arsenic.

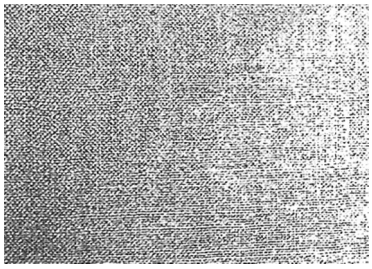
Ching: A vivid greenish-blue.

Ching Ma: Silky and strong fibre in China, yielded by the abutilon plant; used for cordage.

Chino: An all-cotton twill or plain weave fabric using combed mercerized yarn. It is bleached or dyed, a hard wearing fabric and hence used as uniforms for armed forces in many countries when dyed appropriately to pass the specification for fastness etc.

Chinoline-blue: A blue colour made from quinoline.

Chintz: Good quality cotton fabric usually with a large printed design of flowers, birds etc. It is a fine closely woven cloth, finished and calendared in order to resist dirt. An average construction of chintz may be 60 × 60 with highly twisted 25s warp and loosely twisted 30s weft. Used for curtains, slip covers, etc. When the fabric is given permanent finishes it can be used for dress materials.



Chintz braid: Cotton braid, printed and finished like chintz, used for dress trimming.

Chintz calendar: A Calendar for the production of high gloss and closing of fabric yarns. The finish effect is produced by bringing the cloth into contact with a heated, polished, chilled-iron bowl which is travelling at a faster speed than the cloth itself. Three-bowl heavy friction calenders are suitable for highly glazed finishes. The bottom bowl is usually made of close grained cast-iron, the middle bowl of cotton (which is of greater diameter than the others to allow for wear; the top, or glazing bowl, is made of highly polished chilled-iron and is heated by steam or gas.

Chintz finish: High glaze finish produced by friction calendaring cellulosic fabrics previously impregnated with wax or paraffin emulsions, dried, and adjusted to appropriate residual moisture content. Permanent chintz effects are produced on fabrics to which resin finishes (mainly melamine-formaldehyde compounds) have been applied prior to friction calendaring, followed by subsequent curing.

Chintz prints: (partial or local chintz). Localized glazed effects produced by screen or roller printing, e.g. single, multicolour or non-coloured designs with high glaze on white, black or multicoloured grounds without glaze. Pigments are used as colorants. The chintz effects are resistant to washing up to 40^0C.

Chintzing: A process in weaving, by which the colours in the extra weft yarns are replaced with other ones in horizontal sections of the pattern.

Chioggia lace: Coarse, Italian bobbin lace, similar to the early Flanders laces.

Chip: Commercial form of plastics and fibre polymer starting materials (granules).

Chip colouration: See **Mass coloration.**

Chip, fibre: See **Fibre chip.**

Chips: Chips of synthetic fibre polymers (polyamide, polyester). Produced by shredding tapes of the polymerisate melt/polycondensate melt, to reduce

to the required size. Undyed or dyed (chip dyeing), they are re-melted and extruded during spinning (known as the chip-melt-spin method).

Chique: Inferior French raw silk; used for threads.

Chiquechique: Very strong, durable and light fibre, yielded by the leaves of a palm in Venezuela; used for brooms, ropes, and cordage.

Chirimen: Japanese lusterless silk crepe, the warp and filling consisting of equally thick yarns; the filling yarn is twisted to the right and to the left; the fabric is dyed in the piece.

Chisholm: Even sided Highland tartan, made as follows: Wide bright red and narrower dark green bars alternating. The red bars are split with a pair of white lines in the middle. The green bars are edged with three blue stripes (wider on the outside, narrower inside), and are split with red line in the middle.

Chiton: Women's and men's belted linen robe used by ancient Greek, gathered into many folds and secured at the shoulders.

Chitrak: Turkish fabric, made with cotton warp and silk filling.

Chitrang: Bast fibre, yielded by the Sterculia wightii in China; used for cordage.

Chits: Plain and close woven fine calico from India.

Chlaina: Simple woollen men's robe used by ancient Greek, draped over the back and shoulders, clasped at the right shoulder.

Chlamis: Short woollen men's cloak, thrown over the left shoulder and clasped at the right .

Chlidema square: Border squares entirely made from 0.69m body carpet where additional designing procedures are used to produce the border and corner design.

Chloramine: A compound consist of and ammonia gas which retains its bactericidal qualities for a longer time than does free chlorine.

Chlorinated water Fastness: Test for assessing the resistance to chlorinated water. A sample is wet out in distilled water, dewatered to 100% water content and placed in an aqueous solution containing 20 mg/g of active chlorine (from sodium hypochlorite) at a liquor ratio of 100:1 for 4 hours at 20ºC. Assessment with the grey scale.

Chlorination of wool: Treatment of wool with chlorine compounds to alter the surface to make the wool less prone to shrinkage in washing and to improve dye uptake Chlorination, sometimes alone and sometime with subsequent application of special polymers, alters the surface of wool so that the scales are largely prevented from causing the "ratcheting" action that makes the

motion of one strand of wool "one way" with respect to others whose scales point in the opposite direction. By preventing this ratcheting, wool fabric is much less likely to shrink when laundered. Chlorination also improves dye uptake in printing processes, but at the expense of wash fastness. Chlorination is typically done using organic chlorine compounds, sometimes the same as those used for chlorination of small swimming pools. From an operational point of view, the best results can be obtained with the combination of two different and complementary treatments: the first one is an oxidising treatment followed by a special treatment with cationic resins. The first treatment is the traditional chlorination process, carried out using: -NaClO in presence of strong inorganic acids (sulphuric acid)

– Cl_2 gas

– Chlorine organic salts (sodium salt of dichloroisocyanuric acid) which, in acid solution, releases chlorine.

The second treatment is carried out by applying special resins enhancing the anti-felting effect (PA . epichlorohydrin or cationic resins polysiloxanes).

An antichlor treatment with $NaHSO_3$ must be carried out subsequently to eliminate any residue of Cl_2 that might remain on fibres. New treatments to be carried out on tops or fabrics (plasma treatment) are now being studied as an alternative to chlorination.

Chlorination of water: The addition of small amounts of free chlorine, usually 0.2 to 2.0 ppm to render water bacteriostatic in a water supply.

Chlorination/resin finish: Antifelting finish of wool on the base of synthetic resins which is preceded by a chlorination.

Chlorine: Light green; of the colour of vegetation.

Chlorine bleach: A bleach that releases the hypochlorite ion in solution, for example, sodium hypochlorite.

Chlorine/chlorate discharges: These are examples of oxidative discharges:1.. Acid-chloride of lime process for discharging Turkey red and indigo. 2. Chlorate-red prussiate of potash process for discharging indigo, indigoid vat dyes, cationic dyes and mordant dyes.

Chlorine content of bleach liquors: Same as **Available chlorine**.

Chlorine dioxide bleach: Not a very common process now, it finds only occasional application. It is bleaching with an aqueous solution of chlorine dioxide which, during the process, is freshly prepared on a continuous basis in special equipment.

Chlorine fastness: See **Hypochlorite bleach fastness.**

Chlorine-Hercosett process: Antifelting finish for wool based on the application of synthetic resins to prechlorinated wool, e.g. See **Hercosett process.**

Chlorine resistance of resin finishes: The resistance of resin finished textiles to available chlorine, e.g. in bleaches (Chlorine retention) is largely dependent on the chemical type of resin finish applied. Finishes based on e.g. DMPU, are resistant to chlorine.

Chlorine retention: The capacity to hold chlorine the behaviour of finished textiles towards baths that contain active chlorine (so-called chlorine washing, usually as an addition to the actual washing process to improve the whitening effect or to disinfect

Chlorite bleach: Bleaching with Sodium chlorite. In special cases chlorite bleach is used for cotton, but are to be done cautiously. The concentration of the effective bleaching agent, chlorous acid, reaches its maximum at pH 2.5–3.5. Below pH 3.0, fibre damage becomes very noticeable. The decomposition of the weak acid, $HClO_2$, generates the strong acids HCl + $HClO_3$, which hydrolyse the cellulose. Hence the optimum conditions are in the range of pH 3.0–4.0.

Chlorite bleach fastness: Used for assessing the stability to sodium chlorite bleach solutions. (a) Light: treatment with 1 g/l sodium chlorite (80%) at pH 3.5 (addition of acetic acid) for 60 min. at 80ºC, liquor ratio 50:1. Subsequently rinsed for 10 min. in running water. (b) Severe: with 2.5 g/l sodium chlorite (80%). Assessment with the grey scale.

Chloro- (G): Green.

Chloro-: Prefix for compounds with complex bound chlorine.

Chloro(-fibres): Chlorinated polyvinyl fibres are sometimes wrongly called as Chlorofibres. See **Polyvinyl chloride fibres; Polyvinylidene chloride fibres.**

Chlorocruorin: A green pigment present in some marine creatures.

Chlorophanous: Having a yellowish appearance.

Chloroflourocarbons (CFCs): They are derivatives of methane or ethane, where the hydrogen is wholly or partially replaced by fluorine or fluorine and chlorine. With a low boiling point, non-flammable and of relatively low toxicity, chlorofluorocarbons are used as coolants, propellants for aerosols and blowing agents for foams, degreasing agents and formerly as solvents in special dry cleaning plant for furs, leather and delicate articles. There are restrictions for the use of of CFC as drycleaning agents as a large proportion

of tetrachloroethane (hexachloroethylene) is decomposed in the troposphere, the lowest atmospheric layer. It is assumed that the chlorofluorocarbons or at least a part thereof, penetrate undecomposed through to the layer above, the stratosphere, and reach the ozone layer. The effect of the ultra-violet rays which are strong at this level is thought to cause chlorine atoms to separate off from the fully halogenated chlorofluorocarbons (i.e. those without hydrogen atoms), which then break down the ozone molecules to leave molecular oxygen. Thus the ozone layer is reduced and its effectiveness as a filter against UV radiation is weakened. Consequently, UV radiation to the earth's surface is stronger, which could cause biological changes. CFC 11 (trichlorofluoromethane) and CFC 113 (trichlorotrifluoroethane) are thought to pose particular risks as chlorine-containing and fully halogenated CFCs.

Chlorovinyl fibres: See **Polyvinyl chloride fibres.**

Chocolate: A deep brown, the colour of chocolate, although it embraces many shades. Also **chocolate brown**.

Chocolate brown: A dark brown colour; a food additive producing a brown colouring and used particularly in chocolate cake mixes (E155). Also called 'Brown HT'.

Choel: Fibre used for cordage extracted from young roots of Btea tree grown in India, but not very common now.

Choice: 1. Merino clothing wool taken from the best part of the neck of a fine fleece; 2. In the woollen trade the third quality of wool, taken from the middle of the sides.

Chokidal: A Bandhani design. See **Bandhani**

Choke, or choke tie: It is a very tight tie made around all of the threads in the warp—usually this is done on the warping board or reel.

Cholet: (1) Unbleached light French linen, finished without any dressing; (2) Fancy coloured handkerchiefs; (3) Light weight linen with narrow blue and yellow or blue and red stripes.

Choli: Blouse, or a ladies dress, covering the upper part of the body, in India

Chom: Native name in Yucatan for the strong, silky leaf fibre of the wild pineapple.

Chongkwen: Light silk taffeta, made in China, about 27 inches or wider; used for umbrellas.

Chop: A trade mark or ticket on a book of raw silk indicating its grade and name of the produce or shipper.

Choppat: Indian light weight silk taffeta.

Chopped strand, in glass textiles: A strand made from short predetermined lengths of cut continuous filament and used as a reinforcing material.

Choquettes: French term for cocoons of diseased silkworms.

Chord modulus, in a stress strain curve: The ratio of the change in stress to the change in strain in between two specified points on the curve.

Chosheb: In the Bible textiles having patterns woven with gold on a variegated ground.

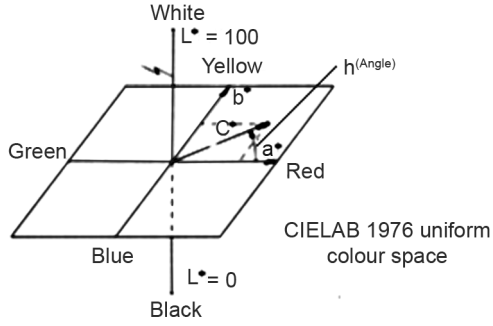
Chouca: Strong leaf fibre, yielded by species of the aloe in South America; used for cordage.

Chow: A vivid blue.

Chowtar: Indian cotton muslin.

Chroma/Chromaticity: The intensity or saturation level of a particular hue, defined as the distance of departure of a chromatic colour from the neutral (gray) colour with the same value. In an additive colormixing environment, imagine mixing a neutral gray and a vivid red with the same value. Starting with the neutral gray, add small amounts of red until the vivid red colour is achieved. The resulting scale obtained would represent increasing chroma. The scale begins at zero for neutral colours, but has no arbitrary end. Munsell originally established 10 as the highest chroma for a vermilion pigment and related other pigments to it. Other pigments with higher chroma were noted, but the original scale remained. The chroma scale for normal reflecting materials may extend as high as 20, and for fluorescent materials it may be as high as 30.

Chroma C*: Chroma measure. As can be seen from CIELAB 1976 uniform colour space, three-dimensional, with colours located using cylindrical coordinates as follows: L* – the lightness coordinate (the same as in L*a*b*)



C* – the chroma coordinate, the perpendicular distance from the lightness axis h* – the hue angle, expressed in degrees, with 0° being a location on the + a* axis, continuing to 90° for the + b* axis, 180° for – a*, 270° for – b*, and back to 360° (or 0°).

From a mathematical standpoint these are the polar coordinates C*, neutral h calculated from the cartesian coordinates a*, b*. "C*" is the abbreviation of chroma and "h" of hue. Many CIE system users prefer the L*C*h* method of specifying a colour, since the concept of hue and chroma agrees well with visual experience.

Chroma component DC*: Chroma difference part of the total colour difference between two colour samples. With the aid of the colour coordinates of two colour samples, it is possible to compute exact colour differences. The first magnitude calculated is the spatial distance between the two colour points. This distance is termed the total colour difference, abbreviated DE* according to CIE. The total colour difference can be further subdivided into hue component DH*, chroma component DC* and Lightness component DL*. The metric hue difference (DH*) is the colour difference, in distance units, due to the hue angle (Dh*) difference. DH* is used in the total colour difference computation, where all terms are distances (not angles), as follows:

Chroma $C^* = [a^{*2} + b^{*2}]^{1/2}$ and Hue angle h = tan-1 (b*/a*)

Chroma measure C*: Same as **Chroma C*.**

Chromate discharges: The discharge print pastes contain sodium bichromate and alkali. Oxidative discharges for the production of coloured discharges on indigo grounds etc.

Chromate dyeing process: Single bath chroming process for chrome dyes. (1) Wool: selected chrome dyes (mordant dyes) are dyed together with a chromium salt in the same bath. This process is used especially in cases where iron or copper is present in the water or in the dyeing equipment. (2) Wool/ cotton unions: special dye mixtures (wool/ cotton chrome dyes) are dyed together with a chromium salt in the same bath.

Chromatic: Perceived as having a hue — not white, grey or black.

Chromatic circle: This is a circular representation of the Hue of so-called chromatic colours which are formed by combining additive colour mixtures. The chromatic circle is restricted to a maximum of 200 different pure shades which can be produced e.g. using perceived equal saturation and brightness values. The commonly used 24-section chromatic circle contains 8 principal colours each in 3 levels (light, saturated/full, dark) and each ordered with the so-called colour coefficient (also referred to as a colour point), starting with

yellow (colour coefficient 1, 2, 3) through orange (4–6), red (7–9), violet (10–12), ultramarine blue (13–15), ice-blue (16–18), sea-green (19-21) to leaf green (22–24).

Chromatic colours: So called pure spectral colours in yellow, red, blue, green and intermediate Shades; in practice mostly mixed with white and/or black. Chromaticity diagram.

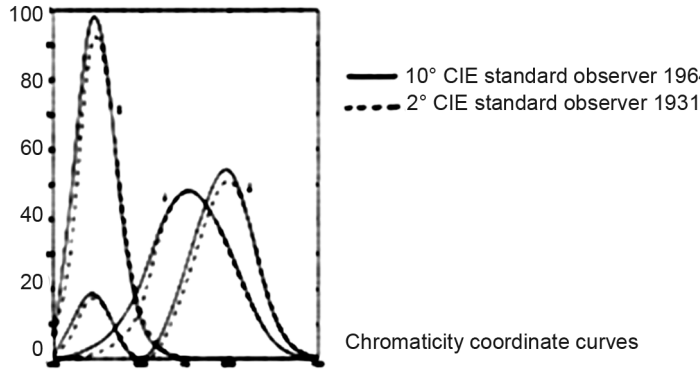
Chromaticity coordinate Curves: See **Chromaticity co-ordinates.** Chromaticity co-ordinated of tristimulus values X,Y,Z are

$x = X / (X + Y + Z)$ (Yellow-blue Coordinates)

$y = Y / (X + Y + Z)$ (Red-green Coordinates)

$z = Z / (X + Y + Z)$

Figure below shows the CIE chromaticity diagram with the spectrum colours forming the boundary line and the neutral colours in the centre for the Standard llluminant D65/10°. The coordinates x, y are also called the chromaticity



Chromaticity coordinate curves

coordinates. These coordinates can be calculated for different illuminants, i.e. the corresponding neutral points, from the tristimulus values of the illuminants. The chromaticity diagram is used in setting tolerances, for example signal light colours (green, amber, red and white) in rail, road or life jacket lamps. The diagram is also used in gamut mapping – in colour monitor colours (R, G, B), for different dye classes, etc. – while chromaticity coordinates are used in many applications, e.g. whiteness index calculations.

Chromaticity co-ordinates (CIE): The ratios of each of the three tristimulus values X, Y and Z in relation to the sum of the three — designated as x, y and z respectively. They are sometimes referred to as the trichromatic coefficients. When written without subscripts, they are assumed to have been calculated for

illuminant C and the 2° (1931) standard observer unless specified otherwise. If they have been obtained for other illuminants or observers, a subscript describing the observer or illuminant should be used. For example, x10 and y10 are chromaticity coordinates for the 10° observer and illuminant C.

Chromaticity diagram (CIE): A two-dimensional graph of the chromaticity coordinates (x as the abscissa and y as the ordinate), which shows the spectrum locus (chromaticity coordinates of monochromatic light, 380-770nm). It has many useful properties for comparing colours of both luminous and non-luminous materials.

Chromatography: (Chromatic adsorption analysis). Separation procedure for isolating individual components from mixtures of substances with similar constitutions (related derivatives, isomers and the like) but having different adsorption power. Can be used for the analysis of mixed dyestuffs. A distinction is made between different kinds of chromatography depending on the physio-chemical basis of the method.

Chromatometablepsy: Colour-blindness.

Chromatophore: A pigment-containing cell in the deeper layers of the skin of some animals producing changes in skin colour. In the fish called the Osbeck such cells enable it to change from red to white in 8 seconds. Many fish and animals can change their colouring. This is achieved in some species (including the African clawed frog) by the release of a hormone which changes the position of the dark pigment **melanin** contained in chromatophores and which variously makes the creature appear dark or colourless. See **chameleon**.

Chromatopsia: An inability to determine or distinguish certain colours.

Chrome: A reddish-yellow shade.

Chrome dyeing: Afterchrome dyes are still widely used in wool dyeing in all stages of wool processing. The benefits are good to excellent colour fastness in all process and wet fastness requirements, good leveling and a low price level. Traditionally, dark shades are dyed, particularly black and navy blue.

Chrome dyes: Dyes for wool that use chromium compounds as mordants These dyes are part of the broader category of mordant dyes for wool.

Chrome green: A permanent yellowy green the result of mixing **chrome yellow** with **Prussian blue**. It is called by many names including **Brunswick green**, **cinnabar green**, **Milori green**, zinc green and **chromium oxide** from which it is made. It is also referred to as, but should not be confused with, **viridian green**.

Chrome leather: An inexpensive leather that has been tanned with chromium salts. It is used in the shoe industry.

Chrome orange: A reddish orange also referred to as Derby red, Victoria red or Persian red. See **lead chromes.**

Chrome red: A deep scarlet red also called **Chinese red** and Derby red.

Chrome yellow: Brilliant yellow produced by mixing sodium chromate and lead nitrate both of which are colourless.

Chrome tanning: Animal hide is tanned into "wet blue" after cleaning by cross-linking the collagen chains with chromium. The expression describes wet, swollen leather that is subsequently dyed and re-fatted. The tanning serves to convert rot-susceptible hide into rot-resistant leather, so that the hide fibres no longer swell or shrink due to the absorption or loss of water, and become more temperature resistant and more resistant to the effect of chemicals.

Chromed wool: Stabilisation of woollen yarn against fungus and bacteria by blind chroming using the single-bath chroming process. The same applies to an even greater extent to afterchromed wool, which has shown a resistance after 75 days during a soil burial test.

Chroming: The coating of copper print rollers with a layer of chrome to protect against damage and chemical influence.

Chroming of dyes: A process used to form chromium complexes in the fibre, which develops the final shade and improves light-fastness, especially wet fastness. A prerequisite is the presence of complex-forming groupings in the dye molecule, mainly OH- and COOH-groups in the ortho position. Dyes with these groupings form complexes with trivalent chrome, with the displacement of the H atoms in the complex-forming groups

Chroming methods: See **Chroming of dyes.** (1) Pre-mordant process: In this method the wool is mordanted before the dye application. With wool (mordant dyes; chromium dyes) the application of the dye onto the premordanted wool provides immediate permanent colouring and therefore makes shading easier. However, only a relatively small number of dyes are available for this process. The process is fairly time consuming, provides little fibre protection and is hardly ever used an is of academic interst only now. (2) Single-bath chrome dyeing process: the simultaneous application of dye and chromium salt to wool, and therefore the dyeing and development of the shade is made possible in a slightly acidic bath. 3. After-chroming dyeing process: achieves the good process and end-use fastness for wool. Dyeing takes place in a slightly acidic bath. After complete exhaustion of the bath, a hexa-valent chromium salt is

added (usually potassium dichromate), and the chromium pigments build up on the fibre during the rest of the dyeing process. The final colour is only seen after successful chroming, which makes shading more difficult.

Chromium: (1) The grey metallic colour of the metal of the same name.

(2) The metallic element that forms the basis of a number of compounds often used as mordants, or as part of the molecular structure of pre-metallized dyes Potassium dichromate is a common mordant chemical. Chromium compounds are toxic and some are carcinogenic. They must be handled with care and understanding of the risks involved.

Chromophore: It is proposed that dyes contain two types of group which are responsible for their colour- chromophore and auxochrome. The first of these is referred to as the chromophore, which is defined as a group of atoms principally responsible for the colour of the dye. It is understood that the chromophore is commonly an electron-withdrawing group, that auxochromes are usually electron-releasing groups and that they are linked to one another through a conjugated system. A particular chromophore structure may be found in a variety of dye classes and in pigments See also **Auxochrome.**

Chronic toxicity: Exposure that will result in sublethal response over a long term, often 1/10 of the lifespan or more.

Chronic value (ChV): Geometric mean of the **No Observed Effect Concentration** (NOEC) and **Lowest Observed Effect concentration** (LOEC) from partial and full cycle tests and early life-stages-tests.

Chrysal: Golden.

Chrysalis: The form taken by the silk worms in the passive stage of development between worm and moth. It is dark brown and fragments of it can often be in the silk waste especially in noils.

Chrysaniline: A golden-yellow dye also called ‘aniline yellow’.

Chryso-, Chrys- (G): Golden or golden yellow.

Chrysoclavus: Rich Byzantine fabric, made of white or purple silk, embroidered with large gold nail heads; worn by state dignitaries.

Chrysolite green: Of the colour of chrysolite, namely, yellowish green (although varying to dark green).

Chrysoprase: A bright golden green or an apple green after the beryl gemstone of the same name which derives from the amalgam of **chryso-** (gold) and **praseo-** (leak green).

Chuddah: Solid coloured wool shawl, made in India of pashmina in very fine twill on hand looms.

Chuddei: See **Chadar.**

Chuna: South American sheep, descendant of the Spanish merino, yields long wool.

Chundri: Indian name for Bandhana. These tie-dyed cotton or silk dress used in native costumes. Usually red fabric with extremely coarse mainly white yellow and green patterns. See **Bandhana**.

Chung-shan chou silk: A chinese silk fabric woven with ply yarn yarn in the warp. It was developed in Nanking as a substitute for imported light weight woollen fabrics. It is in plain or patterned weave and was sold under the trade name "Yi Shing Kung"

Chuncu: Bast fibre yielded by the Caladium tree in Peru.

Chunri: Piece dyed cotton fabric in India, dyed like the bandanna handkerchiefs.

Chuquelas: Striped Indian taffetas, made of silk and cotton.

Church Laces: Needle point laces of the 17th century; used for ecclesiastical purposes, originally with designs of Biblical character.

Churi (Chungri & Chungdi): An Indian term originally for plain weave Indian Cotton and silk sarees dye by the knot tying method.

Chute Fabric: A broad term referring to parachute fabric, fragmentation bomb chute fabric, flare chute fabric and minelaying chute fabric.

Chuzen: Japanese process for manufacturing reserve dyeings with indigoid vat dyes or naphthols on folded wollen fabrics that are printed with a reserved paste, compressed in to a block and has dye liquor poured over them. Used as kimono matrials.

Cibacron F, FN dyes: Cibas exhaust dyeing flourotriazine based reactive dyes. Presently Huntsman and the reactive brands are known under the name Novocrons.

Cibafast W/ Tinofast CEL: Brand name for UV absorber for photochemical wool protection developed by CSIRO IWS and Ciba. Presently liscence lies with different company.

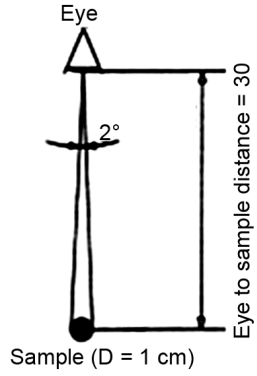
CI: Colour Index**.**

Ciciclia: Silk or half-silk damask dress goods figured with flowers over satin foundation; made in Asia Minor.

Ciclatoun, Siglaton, or Cyclas: Medieval golden fabrics in Europe; originated from Persia.

CIE: (Commission Internationale de l'Eclairage with headquarters in Paris) – The International Commission on llumination, the primary international organization concerned with colour and colour measurement.

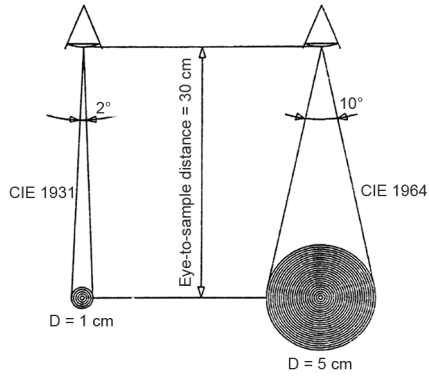
CIE 1931 Standard observer: The research results of Guild and Wright led the CIE in 1931 to define the colorimetric Standard Observer. The primary reference stimuli used were a red spectral colour of wavelength 700 nm, a green of wavelength 546.1 nm and a blue of wavelength 435.8 nm. The test persons had to match all spectral colours in stepwise fashion by varying the intensities of these three primaries. The spectral sensitivity of the eye can be deduced from the intensities required for the different spectral colours. The result of these experiments led to the three sensitivity curves with the aid of which the behaviour of the human eye in the presence of



Small field of vision CIE 1931 observer

light of different wavelengths can be described. In Figure below the three sensitivity curves are shown as broken lines; they define the so-called 2° Standard Observer or the CIE 1931 Observer. These three curves are called the chromaticity coordinate curves. The red-sensitive curve is symbolized by x^- the green-sensitive curve by y^- and the blue-sensitive one with z^-.

CIE 1964 Standard observer: Based on new findings of W.S. Stiles carried out for a larger field of view of 10°, in 1964 the CIE defined the 10° Standard Observer incorporated in most colorimetric programs today. The differences between the two definitions of Standard Observer can be seen from Figure above (see **CIE 1931 observer**). The larger field of view of 10° corresponds better to colour matching conditions in actual practice. Figure below shows the size of the areas observed under a field of vision of 2° and 10°. For an eye-to-sample distance of 30 cm, the two fields of vision correspond to a circular area with a diameter of 1 and 5 cm, respectively.



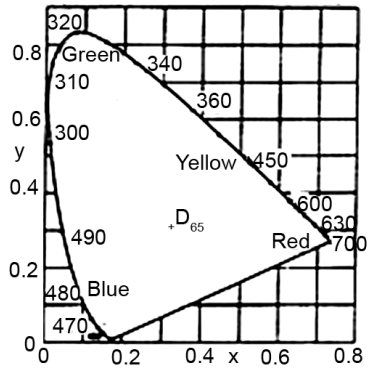
Small and large field field of vision

CIE 1976 L*a*b* colour space: A uniform colour space utilizing an Adams-Nickerson cube root formula, adopted by the CIE in 1976 for use in the measurement of small colour differences.

CIE 1976 L*u*v* colour space: A uniform colour space adopted in 1976. Appropriate for use in additive mixing of light (e.g., colour TV).

CIE 1976 L*a*b* equation: A commonly used equation which transforms CIE tristimulus values into a threedimensional opposed colour space. Generally abbreviated as CIELAB.

CIE Chromaticity Diagram: Although any colour under a given illuminant can be unambiguously described by chromaticity co-ordinatess X,Y,Z one has to learn how to interpret these values meaningfully and work out their relation to the perceptual magnitudes of hue, chroma and lightness. In order to obtain a clear presentation, more or less complicated mathematical transformations



Examples
Daylight D65 x = 0.3138
y = 0.3310
Incandescent light (A/10)
x = 0.4512
y = 0.4059
Flourecent light (TL84/10)
x = 0.3738
y = 0.3750

CIE chromaticity diagram

must be carried out. The oldest type of such representation, which is occasionally still used today, is the CIE chromaticity Diagram, often termed the Colour triangle. The colour coordinates are calculated as a measure of the yellow-blue component of the colour sensation and a measure of the green-red component in the following manner:

x (Yellow – Blue coordinate) = X/ (X+Y+Z) and y = Y/ (X+Y+Z) (Red – Green coordinates)

CIE chromaticity coordinates: See **Chromaticity co-ordinates.**

CIE chromaticity diagram: See **Chrmaticity diagram**.

CIE daylight illuminants: See **Daylight illuminants (CIE).**

CIE luminosity function (y): See **Luminosity function (CIE).**

CIE standard illuminant: See **Standard illuminants(CIE).**

CIE standard observer: See **Standard observer (CIE).**

CIE tristimulus values: See **Trstimulus values (CIE).**

CIE Triangle: The CIE chromaticity Diagram, often termed the Colour Triangle.See **Chromaticity coordinates**.

CIE Whiteness Formula: CIE recommendation for standard identification of the degree of whiteness. The formula should only be used for a relative comparison of similar samples measured at the same time on the same device because of the technical difficulty in measuring fluorescent dyes (absolute precision, precision of adapting the sample lighting to the spectral distribution of daylight). In relation to D65, 10 degrees, the CIE whiteness formula is:

$$W = Y + 800.(0.3138 – x) + 1700.(0.3310 – y)$$

As well as the whiteness formula, a formula for identifying the tint of white samples is recommended:

$$T = 900 \cdot (0.3138 – x) – 650 \cdot (0.3310 – y)$$

T is positive for samples with a green tint, and negative for samples with a red tint.

CIELab: Colour difference units (evaluation) obtained from colour measurementprocedures and calculated with the aid of colour difference formulaare generally expressed in CIELab units today. According to CIELab system , the CIELab co-ordinates L, a, b are represented in colour space as mutually perpendicular with L representing the lightness from (white to black) with a representing red/green and b representing yellow/blue colour defferences respectively.

CIELAB (1976) (or CIE L*a*b*, CIE Lab): Colour space in which values L*, a* and b* are plotted using Cartesian coordinate system. Equal distances in the space approximately represent equal colour differences. Value L* represents lightness; value a* represents the red/green axis; and value b* represents the yellow/blue axis. CIELAB is a popular colour space for use in measuring reflective and transmitive objects.

CIETEX: Conference Internationale de l'Enseignment Textile (International onference on Textile Education.), Villeneuve d'asq-Flers, France.

Cigar: The brown colour of the cigar.

Cigarette test: Flammability test.

CIM: Computer Integrated Manufacturing.

Cimmerian: Grey, ashen.

Cincinatti Red: An intense orange-red.

Cinereous: Grey, ashen; ash grey; especially of birds.

Cinnabar green: A non-permanent green made from **cinnabar**; also said to be produced by mixing.

Cadmium yellow (or sometimes **chrome yellow**) with **Prussian blue.** Referred to also as **chrome green**, zinnober green and green cinnabar.

Cinnabar red: A permanent vermilion.

Cinnabar, cinnebar, zinnober: Mercuric sulphide used in crystalline form as a red pigment since ancient times; the colour itself, a vermilion; see also **cinnabar green** and **cinnabar red.** Cinnabar was widely used by the Chinese since the third millennium BC and was formerly referred to as **Chinese red**.

Cinnamon: The yellowish-brown of cinnamon; sometimes reddish-brown or greyish-brown tinged with red. Also the colour name given to deep brown diamonds having little value. See **diamond colour**.

Cinq Trous: French lace made with a five sided mesh ground.

Ciporovica: Bulgarian tufted rug, made of native wool on hand looms.

Circassian: English worsted fabric of the 19th century.

Circassian Rugs: All-wool rugs, made in Asia Minor; the short and loose pile is tied in Ghiordes knot, both ends are 'finished with a narrow, knotted fringe; usually elementary colours ara being used, white extensively.

Circlet: Ring of metalor flowers etc, worn around the head or brow, in ramanesque, gothic.

Circular bend: Simultaneous, multidirectional deformation of a fabric in which one face of a flat specimen becomes concave and the other becomes convex.

Circular knit: Thin plain knit fabric made on circular knitting machine.

Circular knit goods: Fabric knitted in tubular form which is mostly also finished in this form and only afterwards slit open if necessary. Circular knit plie fabric: (nicky) Plush fabric of smooth or textured yarns with closed loops (plush loops) similar to terry fabric.If loops are cut, Cut-pile plush is obtained. Ground fabric is of cotton but sometimes reinforced with polyamide or polyester yarns, and pile is of cotton. Special shearing machine is used to the piles which are of about 3-4 mm size.

Circular knife cutting machine: Unit with which printed fabrics etc, particularly printed nonwovens are cut or parted to a specified width.

Circular-knit pile fabric: (Nicky) Plush cloth, of smooth or textured yarns, with closed loops (plush loops), similar to Terry fabric. If the loops are cut, Cut-pile plush is obtained. The ground of the fabric is usually cotton, possibly reinforced with polyamide or polyester yarns, the pile of cotton. Loop size 3–4 mm. Special shearing machines are used to cut the pile (loops). Before shearing, the goods are tumbled.

Circular knitting: The process of knitting the fabric is produced in circular or tubular form on circular knitting machines where the needles are fixed on needle bed which are circular.

Circular knitting machine: A knitting machine incorporates needles which are moved individually by cams acting on the needle butt; they are used for producing weft knits and are subdivided into circular knitting machines and flat-bed knitting machines. The needles used can be latch needles or compound needles. The needles are fixed on needle-bed of a knitting machine and it can be can be flat or circular. The latter ones are called circular knitting machines. Normally circular loop-wheel machines are used for the production of weft knit fabrics, which only use spring-beard needles.

Circular-knit fabric: Fabric manufactured on a Circular knitting machine.

Circulating liquor machine: A machine for processing the textile where the liquor is in circulation. Eg. Jet dyeing machine, Beam dyeing machine. Here the fabric can be stationary or moving.

Ciré: (Fr. wax, waxed; also oilskin rainwear). A brilliant patent leather effect produced by the application of wax, heat and pressure. Fabrics are mostly impregnated with paraffin or wax emulsions followed by a passage through the Friction calender. The result is a supergloss almost metallic in appearance. (A shiny surface given by a hot calendering alone to a fabric made from thermoplastic fibres is also called ciré).

Cire' finishes: See **Embossed cire' finishes.**

Cire' calender: Calender with slightly engraved embossing bowl for getting calendered effect on the calendered material.

Cire' effects: Embossing.

Ciré: The French word for 'waxed', it was originally a waxed fabric used for shrouds. This treatment of wax in under heat and pressure the fabric surface makes it very lustrous and smooth. Fabric after impregnation in wax emulsion and immediately passed through a frictin calendar. It may be applied to silk. Not readily available nowadays.

CIRFS: Comite' International de la Rayonne et des Fibres Synthe'tiques (International Rayon and Synthetic Fibres Committee). Paris, France.

Cirrho- (G): Tawny, orange.

Cisele': A grainy plain colour silk crepe' fabric with a scroopy handle and good draping property, unlike a Moss crepe in appearance. Shrink resistant, crease resistant and water repellent properties are imparted by finishing.

Cisele' velvet: It is a velvet with pattern formed by a contrast in cut and unscut loops. See **Velvet.**

Cisterns: Open pits constructed by brickwork or concrete, lined with ceramic tiles, used in processing as temporary storage units for piling down fabric in rope form between the individual process stage of alkaline scouring or bleaching.

CITEN: Comite' International de la Teinture et du Nettoyage. (European professional Organisation of Dyers and dry Cleaners.

Citric acid: A solid organic acid; $HOCCOOH(CH_2\ COOH)_2$ (or C_6H8O_7); 2-hydroxy-1,2,3-propanetricarboxilic acid. Citric acid is sometimes used in dyeing as an alternative to other chemicals such as acetic acid. It is convenient to store and handle, but may be more expensive. It is a weak acid but can produce pH in the range of 2 to 3. It can act as a sequestering agent for some metals, so it may be inappropriate for some metal-containang dyes such as premetallized organic dyes. It is used as a resist in some printing processes with reactive dyes on cellulosic fibres, acting by maintaining a pH that prevents the dye from fixing to the fibre. Used as neutralizing agent in special cases and also in pigment printing.

Citreous: A greeny-yellow; lemon-coloured.

Citrin-, citro- (L): Lemon, yellow.

Citron: A browny yellow from mixing green and orange. Also 'citron yellow' a colour often used by Vincent Van Gogh.

Civil: Coarse but strong bast fibre, yielded 'by a species of the Malvaceae in Mexico.

CL: Polyvinyl chloride fibres

Cladding: Any item of covering material which is applied to the head or buck of a pressing or under pressing machine.

clair de lune: A pale blue glaze for ceramics.

Claires: Fine, open batiste, made in France.

Clamp: The part of the testing machine used to grip the specimen firmly during the testing.

Clan tartan: The plaids of the various highland clans of Scotland.

Clandian: Fine, lightweight woollen summer dress goods, consisting of alternating stripes of a dark colour interchanged with a number of lighter coloured threads and stripes of mixture or mottled colours.

Claret: Reddish-violet; of the colour of claret wine; a red having the same hue as bordeaux wine. From the Latin *clarus* meaning 'clear' from which the words 'clarity', 'clarinet' and 'clarion' all derive.

Clasp cloak: Circular cut shoulder cloak,held at the front with a clasp in Gothic period

Class-one Wool: Merino sheep produce the best wool which is relatively short, but the fibre is strong, fine, and elastic and has good working properties. Merino fibre has the greatest amount of crimp of all wool fibres and has a maximum number of "scales": two factors which contribute to its superior warmth and spinning properties. These sheep produce class one wool.

Class-two Wool: Class-two wools are not quite as good as the Merino wool, but this variety is nevertheless a very good quality wool. It is 50-200 mm in length, has a large number of "scales", and has good working properties. This class of sheep originated in England, Scotland, Ireland and Wales.

Class-three Wool: These fibres are about 100-455 mm long, are coarser, and have fewer "scales" and less crimp than Merino and Class-two wools. As a result, they are smoother, and therefore, they have more lustre. These wools are less elastic and resilient. They are nevertheless of good quality to be used for clothing. This class of sheep originated in the United Kingdom

Class-four Wool: These fibres are from 25-400 mm long, are coarse and hair like, have relatively few "scales" and little crimp, and therefore, more smoother and more lustrous. This wool is less desirable, with the least elasticity and strength

Classical: The second best grade of raw silk.

Classification of dyes. There are two types of classification of dyes: One based on chemical composition and other based on uses.

Classification according to chemical constitution to textile usage	
Azo dyes	Acid dyes
Anthraquinone dyes	Azoic dyes
Heterocyclic dyes*	Basic dyes
Indigoid dyes	Direct dyes
Nitro dyes	Disperse dyes
Phthalocyanine dyes	Mordant dyes
Polyme thine dyes	Pigments
Stilbene dyes	Reactive dyes
Sulphur dyes	Sulphur dyes
Triphenylmethane dyes	Vat dyes
*Includes a number of different subgroups containing heterocyclic system (only the most important subgroups in each classification are given).	

Classification of Wool by Fleece: Wool shorn from young lambs differs in quality from that of older sheep. Also, fleeces differ according to whether they come from live or dead sheep, which necessitates standards for the classification of fleeces.

Classiques: French, stout, all-cotton sheetings.

Clauder – Weldon machine: One of the earliest loose cotton dyeing machine. It consists of a trough with a slope at one side and contains the dye solution. A cylindrical perforated drum of of copper is provided in the trough. The flanges at the drum carry a shaft The drum is divided into four compartments with per forated partitions and each of the compartment is provided with a manhole for filling and removing the material. The liquor is heated in the trough while the drum is rotated. The liquor enters the drum and the cotton is dyed. Fingers provided in side the drum on its shaft prevents the slippage of the cotton and keep it in open state.

Clavi: Decorative strips used as edge trimmings, mostly purple dyed in ancient Rome during Byzantine period.

Claws: Clips.

Clay: (1) A light brown. (2) A name given to serges, worsteds, and diagonals woven after a process of J. & P. Clay of Haddersfield, England. Old term.

Clays: Originally English worsted serge for men's wear, made of slack twist warp and filling, woven with six-harness twill, forming very flat diagonals and finished with a soft 'but clear handle.

Clear Finish: Fabrics having the nap removed from the face, showing the weave.

Clean-finish seam-finish: A finish for the raw edges of the seam allowances of a plain seam, in which the raw seam allowance is folded under the edge stitched.

Clean Content (Wool): The amount of clean, scoured wool remaining after removal of all vegetable and other foreign material.

Clean wool fibre present, in raw wool: the weight of wool base present adjusted to a moisture content of 12% , an alcohol extractives content of 15% and a mineral matter content of 0.5%.

Cleaning agent: A chemical compound or formulation of several compound which loosens, disperses, dissolves, or emulsify soil to facilitate removal by mechanical action.

Cleaning efficiency (CE), in spinning: The cleaning efficiency (CE) is the percentage of the impurities removed from the fibre mass. It is calculated as per the following formula,

$$CE = 100.(W_{in}-W_o)/W_{in}$$

where W_{in} and W_o are the mass values of the impurities in the feedstock and the processed material, respectively at the input and output to a machine or a sequence of machines, and CE is the cleaning efficiency.

Cleaning head, in carpet cleaning: A vacuum head modified with spray nozzles for cleaning solution application. Some types include a powered brush unit to facilitate wetting and soil release.

Cleanness, in silk: The degree of cleanness in raw silk panels, determined on the basis of incidence of cleanness defects classified as super major, major and minor defects by using official standard photographs for cleanness. Cleanness is expected as percentage.

Cleanness defects, in silk: defects found in raw silk such as waste, slugs, bad casts, knots, cork screws, loops and loose ends.

Clear Finishing: Usually, worsteds are not brushed, but closely sheared to give the fabric a clean face and crisp feel. This is called clear finishing. See also **unfinished worsteds**.

Clearing position (knitting position), in knitting: The needle butt is still pushed upwards by the cam and the old loop is on the needle stem and behind below the needle latch.

Clearing agent: A chemical compound formulation of several compounds which loosen, disperse, dissolve or emulsify soil to facilitate removal by mechanical action.

Clearing (Yarn): The process of removing imperfections from a yarn. The fault normally replaced by a yarn joint knot knot or splice.

Clem: A very small dart which is sewn and not cut.

Clematis: A bright bluish violet similar to the colour of the flower of the same name.

Cleopatra: A vivid greenish-blue.

Clergy tartan: A tartan formerly used by the Scotch Highland clergy for every day wear. It consisted of wide dark blue and black bars of even width. The -black bars were split in the middle with a fine green stripe. The blue bars were alternately split by a pair of fine green stripes or five fine green stripes. The latter arranged in pairs at the edge and one in the middle. All green stripes were edged with a fine black line.

Clevyl: The trade name for a range of flame resistant fabrics manufactured by Societe Rhovyl and which are based on Rhovyl's PVC chlorofibre. Used for furnishings in public buildings, offices etc. On account of their exceptional safety and also because of the wide range of eaves and effects that is possible.

Cling test: Measuring instrument which measures the adhesion of a test fabric charged with static electricityby friction on ametal plate Time taken for the test specimen to fall is measured.

Clingy: A term used in USA to describe the undesireable adhesion of the fabric to the body during wear.

Clinquant: Flat gold braid for military uniforms.

Clip: One season's yield of wool from a single angora goat.

Clip, in sewing: Clip is to make small cuts in fabric to allow ease on curves or corners.

Clip mark: A defective lighter or darker mark on the on the fabric when heat setting of synthetic goods, due to the subsequent variable dye uptake. It can be enlarged pinholes, tears or shift marks along the edge of the fabric.

Clippings: Irregular small pieces of cloth, the waste of the cutting room; used for patch work, quilts, or are reworked into shoddy.

Clips: Continuous holding devices for anchoring woven fabric selvedge (stenter) during drying, heat setting shrinking, mecerising etc. enabling fabric to be tensioned or relaxed as necessary.

Clip spots: Small spots of extra warp and/or weft between which the floating material is clipped or sheared of after weaving.

Clip mark: A visible deformation near the edge of a fabric parallel with the lengthwise direction caused by pressure excerted by a clasping device on a clip stenter frame.

Clo: Unit of thermal resistance defined as the insulation required to keep a resting man (producing heat at the rate of 58w/m^2) comfortable in an environment at 21°C, air movement of 0.1m/s or roughly the insulation value of the typical indoor clothing. One unit of clo is equal to 0.155 Km^2/W.

Cloaking: Large variety of woollen, worsted or silk fabrics used for cloaks or coats; usually of heavier weight, as chinchillas, sibeline, etc.

Clochepied: Three-thread organzine for gauze; made by twisting first two threads together, then adding the third thread.

Clock: Embroidery at the ankles of the hosiery, consisting of two lines meeting at an angle, one line going up the leg, the other toward the toe. In French is called coin.

Clock Reel: A device for winding hanks of yarn. Some come with various kinds of counters. An image of a clock reel can be found at the Illinois State Museum site.

Cloque: The French word for blistered. The fabric with raised figures regularly or irregularly is aptly called by this name. Originally this fabric was made out of silk but now it is made in acetate or polyester yarns nand are imitations of the original stuff. In the new form the blistering is more permanent thanthe originals. There are three types of cloques: I. Woven cloque, II Chemical cloque, III. Bonded cloque. Used for evening cocktail wear, some millinery, negligees, etc.

Cloqué fabric: See **Cloque.**

Cloque woven: A compound or double fabric with a figured blister effect brought about by the use of yarns of different character or twist which respond to different ways to finishing treatments.

Close Leaf: In bobbin-made sprigs leaves entirely filled out with cloth stitches.

Close Stitch: In needle-point laces all buttonhole stitches made without any loops.

Closed-face fabric: A face or shell fabric of closed construction so that no open face areas appear.

Closed feather stitch: An embroidery stitch in the shape of a zig-zag stitch in between two embroidered lines. This stitch is worked along two parallel lines. Bring the thread through at starting point and, with the thread under the needle. stitch from to the opposite side to the next point corresponding to the

starting point. Swing the thread over to the left and, with the thread under the needle, take a stitch from point opposite to the starting point and to the next point opposite to the second point corresponding to the starting point. Repeat these two stitches.

Closed lap: In knitting, if an overlap and the next underlap are made in opposite directions to each other, a closed lap is then produced. A closed lap is heavier, less extensible, and more compact than an open lap.

Closing: A sewing operation to to seal a bagged out garment section.

Closures: Items used to close openings in apparel and other consumer textile products, i.e. buttons, buckles, hook and eye, snaps and zippers.

Cloth: A piece of textile fabric but especially one designed for apparel, domestic, or industrial use. This word is used to describe any type of fabric, but perhaps most used in connection with woollens and worsteds- the suitings and coatings.

Cloth (in garment): In garment industry the principal outside fabric is called as the cloth; a piece of fabric suitable for specified use.

Cloth of Areste: Medieval rich fabric woven with gold figures; used for church vestments.

Cloth beam: Serves as a take up device on the loomfor the finished (woven) textile. Also called Cloth roller. See **Cloth fell.**

Cloth blanket: Made in plain weave and slightly napped.

Cloth of bruges: Gold brocaded silk fabric; used for church vestments in England during the Middle Ages.

Cloth of Cologne: Medieval fabric made at Cologne, Germany, with gold patterns over blue or other coloured silk foundation.

Cloth control: Another term for Take-up.

Cloth Embroidery: In Asiatic countries work made of joining together various shaped and coloured small pieces of cloth with the aid of fancy stitches.

Cloth fell: A term in weaving technology. During the weaving operation, the warp unwound from the weavers beam passes round the backrest (back bearer)and comes to the heald frames (harnesses), which are responsible for separating the warp sheet for the purpose of shed formation, it then passes through the reed (swinging frame in front of the heddles) which holds the thread at uniform spacing and is also responsible beating up the last inserted pick. All the thread unite again in the fabric at the point of cloth fell. The cloth then passes over the front rest (breast beam) round the take-up roller and wound over the cloth roller (cloth beam or merchandise beam).

Cloth of Gold: Fabrics mentioned in old manuscripts, made entirely of gold wire, narrow flat strips of gold, or mixed with other fibres, as silk.

Cloth guide: Fixed guiding apparatus, which operates on a length of fabric passing over it.There are retarder guiders, expander guiders, or deflector guides depending in the use.

Cloth Ingrain: Medieval English worsted, worn by the rich.

Cloth of Pall: Rich medieval silk fabric dyed in crimson; used for church vestments.

Cloth of Tars: A costly medieval fabric, believed to 'be of silk and cashmere wool; usually dyed purple.

Cloth of Raynes: Fine medieval linen, used for shirts and bed linen.

Cloth Serge: An 18th century English serge, made of worsted warp and woollen filling.

Cloth Stitch: In bobbin laces interlacing the threads like the weaving of a cloth.

Clothes Moth: The larvae of this moth eats wool and other protein fibres. Various articles on fibre pests can be found here.

Cloud point: Cloud point is defined as the temperature at which a 1% solution of a nonionic surfactant forms a cloud of insolubility. Cloud point is influenced by the structure of the hydrophobe and the degree of ethoxylation. Temperature too has an influence on hydrogen bonds, as the temperature increases, H-bonds rupture. At some elevated temperature, enough of them will have broken to cause a cloud of insolubility to form. Eventually the surfactant will separate into an insoluble layer floating on water. Cloud point of a given hydrophobe is influenced by the number of ether units available to hydrogen-bond with water. Cloud pint occurs in the case of nonionic surfactant only.

Cloud point index: Cloud point index corresponds to the water in ml that will turn cloudy a solution of 1g of the surfactant in 10ml of n propyl alcohol at 30 C. The method has good reproducibility but is very sensitive.

Cloudiness: (1) In a weft-knitted fabric, a defect that consists of ill-defined areas of varying density attributable to the use of yarn of irregular thickness. (2) In webs and slivers, a defect that consists of ill-defined areas of varying density. (3) In a dyed fabric, a defect that consists of random, faintly defined areas of varying density. (4) In a bleached fabric, a defect that consists of opaque patches, usually visible only in transmitted light. (5) Defect in yarn, showing thin and thick places.

Cloudy Yarn or cloud yarn: (1) Fancy ply yarn, having flakes held by the strands; (2) Ply yarn with irregular twist, made by alternately twisting the different coloured strands around each other.

Cloudy dyeing: Unlevel, mottled appearance of a dyeing.

Cloudy Wool: Wool that is off-colour. It may be due to wool becoming wet while poorly stored in a pile.

Clouties: English linen cloth.

Clove: English measure of wool, equal to 7.7 pounds.

Clove brown: A greyish brown.

Clover: A pinkish purple.

Club check: Small checks in quiet two coloured effects.

Cluett process: Compressive shrinking process. Most of the shrinking machine for woven runs on this method.

Cluny guipure: Hand-made lace, the patterns being worked over square netting ground, similar to the darned net laces.

Cluny lace: A close, heavy bobbin lace made in France and Belgium, often with a wheel design. Its heaviness limited its use to collar decoration in dress but it was much used for mats, doilies and table-ware.

Cluny tapestry: Stout, thick fabric made in England with woollen warp and silk filling, forming warp cords; used for hangings.

Clydella: Trade name for a traditional, soft woven mixture of 81 % and 19% wool in plain or print. It wears well, is soft and warm and washes easily. Used for shirts, blouses, nightear, babies and childrens clothes.

CMC: (1) Carboxy Methyl Cellulose: Critical Micelle Concentration.

(2) *(Colour Measurement Committee of the Society of Dyes and Colourists of Great Britain)* - Organization that developed and published in 1988 a more logical, ellipse-based equation based on L*C*h° colour space for computing DE (see **delta E***) values as an alternative to the rectangular coordinates of the CIELAB colour space.

(3) Critical Lamellar Concentration. See **Micelle.**

CMC unit, in colour difference Evaluation: A measure of acceptability expressed in terms of the boundary for the CMC acceptability ellipsoid of $\Delta Ecmc = 1.0$.

CM Cotton: Cotton treated with monochloro acetic acid and then sodium hydroxide is conveted in to CM cotton which is having a ‘starched’ appearenceand handle / or CM cotton which can easily disintegrate in water.

CMD: Modal fibres

CMT: Abbrev. for Cut, Make and Trim. A section of industry in which a contractor is supplied with materials and designs in order to produce a garment for the principal.

CMYK (or CYMK): An acronym for **c**yan, **m**agenta, **y**ellow and blac**k** – the four colours which are used in colour photography and printing.The letter 'K' is used to avoid confusion with the 'B' in **RGB**and also refers to black as the '**k**ey' or '**k**eyline' colour. Although black can be obtained from mixing the other three colours it is produced in printing by using a black ink. CMYK uses the **subtractive process**. Compare RGB.

CNS: Spanish Standards Organisation.

CO: Cotton.

Coagulant: Chemical added in the water and waste water applications to cause formation of flocs that absorb, entrap, or otherwise bring together suspended matter defined as colloids. Compounds of iron and aluminium are generally used to form flocs to allow removal of turbidity, bacteria, colour, and other finely divided matter from water and waste water.

Coagulation: Coagulation or flocculation of colloidally dissolved particle by accumulation, flocculation and small lump formation and sttling to the bottom as an insoluble gel. This Process is extensively used in Treatment of Textile effluent.

Coagulation bath: Bath used for manufacturing protein fibres. In the production of the Man made Protein fibre the protein of vegetable of animal origin is used. The fibre is spun by wet spinning from coagulated bath of protein by adding suitable coagulant e.g., Sulpuric acid, sodium sulphate.

Coalescence: Confluence of the droplets of an Emulsion. In most cases, aggregation precedes coalescence.Coalescence leads to breaking of the emulsion.

Coal Tar Colours: Colours obtained by distillation and chemical treatment from coal tar, a product of coal during the making of gas. There are over 2,000 colours in use.

Coarse end: A warp yarn with a larger diameter than normally used in the fabric.

Coarse filling: See **Coarse pick.**

Coarse filling bar: See **Filling bar, coarse.**

Coarse pick: One or more weft/filling yarn with larger diameter than normally used in the fabric.

Coarse thread: see **Coarse end.**

Coarse tow: The entire fibre of flax, after the shives have been removed.

Coarse Wool: Wool that has a Blood grade of 1/4 or Common OR a numerical count grade of 44's, 45's, or 48's, OR a micron count above 31. Coarse wool may have as few as 1 to 5 crimps per inch.

Coat: An outer garment which covers at least the upper half of the body, have sleeves and a front opening , and is usually worn over another garment , such as a dress or a shirt.and often as in work wear, described further by length. E.g. ¾ th or full length.

Coated cotton: A thin covering of polyurethane on cotton or viscose backing producing a soft showerproof fabric. May be plain or printed. Used for shorts, anoraks, raincoats, jackets etc.

Coated fabric: A flexible material composed of textile fabric produced with one or both surfaces, a layer or layers of firmly adherent coating material, with coating that are homogeneous or cellular in structure, E.g. Foam laminated Textiles, Artificial leather.

Coated Fleeces: Some wool producers coat their fleeces that cut down on the amount of vegetable matter and weathering.

Coating: One or two sided application of coating compounds or foam films to woven fabric, knitted goods or nonwoven fabrics or yarns by means of coating machine, roatary screen prining or by means of sparay, hot melt and transfer coating methods.

Coating, Calender: A type of roller coating that is actually a laminating operation. The coating is formed into a sheet, then joined with the fabric.

Coating, cast: A method by which resinous materials such as vinyl are coated onto a fabric and cured by heated casting drums.

Coating, dip: The process of passing a fabric through a solution of resin or elastomer, then through squeeze rolls to remove excess and leave a thin surface layer on the base fabric. In this process, both sides can be coated in one pass.

Coating, direct: The simplest method of coating, this procedure involves spreading the coating with a knife. The moving fabric substrate is usually supported by a roller or a sleeve. The gap between the knife and the fabric determines coating thickness.

Coating Compounds: Are used for coating purpose on textile base fabrics like, starch paste, cellulose derivatives, natural and synthetic rubber, plastics like polymethacrylate, polyamide, polybutadiene, polyisobutylene, polyurethane,

polyvinyl acetate, polyvinylchloride, foamable plastics and elastomers for special coatings.

Coating knife: Also known as doctor blade is a steel blade sharpened at the application end or a rubber blade which is less precise in it application.

Coating machine: Used for coating of coating compounds on to the fabric. Consists of compound trough, coating head with adjustable height and guide roll systemand dotor blades.

Coating machine for rotary screens: The machine used for coating the photographic chemicals (for exposure by light) or other coating chemicals (for laser or jet engraving) on the screen.

Cobalt: Indicating pigments made from salts of cobalt, for example, **cobalt blue** and **cobalt green**. The word cobalt comes from the German word *kobolds* meaning a ghostand was used in Bohemia to describe the pigment because it was considered to be plagued by spirits.The blue colouring agent in **smalt**.

Cobalt blue: A deep greenish-blue or purplish-blue similar to **Prussian blue**. Used in the staining of glass. A synthetic pigment also known as **Thénard's blue, Dresden blue** and **King's blue** first made in 1802 by the chemist J-L Thénard (1777–1857).

Cobalt green: A bright yellowish-green discovered in 1780 by Rinmann and also referred to as 'Rinmann's green'.

Cobalt turquoise: A blue made from cobalt titanium oxide.

Cobalt violet: A very light-toned toxic violet pigment first used in 1860 and superseded by manganese violet.

Cobalt yellow: A yellow pigment otherwise known as **aureolin**.

Cobbler: In England piece goods which have been returned because of unsatisfactory make or dye.

Cobbling: Redyeing of defective pieces of woollen fabrics that are off shade or are uneven in shade.

Cobweb: (1) Name applied to very sheer hosiery; (2) A commercial variety of late maturing cotton from 'Mississippi, the very fine and silky staple 'measuring 35–40 millimeters; the yield is '28–29 per cent.

Cob-web finish: A synthetic pilling effect achieved on stitch bonded fabric for coatlining through raising, steaming, and subsequent tumble drying.

Cobourg or Coburg: An English fabric introduced after the marriage of Queen Victoria; made of closely placed silk or cotton warp and worsted filling, woven in a 2/1 cashmere twill weave; used for coat lining and dress goods. They come dyed in the piece or printed.

Coccin- (L): Scarlet.

Cochineal: A fiery red Natural dyes (mordant dye) consisting of the dried bodies of the female insects of Coccus cacti, another species of the shield-louse family, largely cultivated in Mexico. 1 kg of dye = approx. 140 000 insects.

Cochineal red: The red colour of **cochineal.**

Cochinillin: The colouring matter of **cochineal** also called **carmine**.

Cochran: A commercial variety of cotton from Georgia, the staple measuring 35–40 millimeters; the yield is 32–33 percent.

Cockle, in fabric: The crimped, rippled, wavy or pebbled appearance of a fabric where distortion of the structure has occurred as the result of non-uniform relaxation or shrinkage.

Note: This defect may result from variations in the tension of the ends or picks at the time of weaving, from variations in the degree of stretch imposed on the yarn during earlier processes or from the differences in contraction of two or more yarns used accidentally or intentionally in the fabric. The defect may be distributed over a large area of fabric or may be confined to isolated stripes, bars or streaks.

Cockled bar: See **Tension bar.**

Cockled yarn: Irregular, thick, uneven, lumpy spots in the yarn. Spun yarn in which some fibres do not lie parallel to the other fibres but instead are curled and kinked, forming a rough and uneven surface on the yarn. The general cause is fibre overcut to the extent that the drafting rolls catch and hold both ends of the fibre at the same time while attempting to draft, resulting in slippage or breakage.

Cockles, in yarn: Irregular, thick, uneven lumps.

Cockling: A crimpiness/curliness or pucker in yarn or fabric usually caused by lack of uniform quality in the raw material used improper tension on yarn in weaving, or weaving together yarns of different numbers.

Cockling, in knitting: An irregular surface effect caused by a loop distortion.

Cockspurr willey: See **Willey.**

Cocoa, cocoa brown: The colour of cocoa; a colour particularly popular in the 1930's.

Coconut oil: The major fatty acids found in this oil are lauric (48%) and myristic (18%). Both acids have shorter length chains (C12 and C14) and are saturated. The laurel chain length is ideal for high foaming soaps. Its

potassium salt has higher water solubility acids and is used to make liquid soap products.

Cocoon: An oval shell, consisting of raw silk, spun by the silkworm around itself. The outer and inner layers can be used only for floss or spun silk, while about 10 per cent of the weight can be reeled off in a single filament, averaging about 300 yards in length. About I2 pounds of cocoons will yield one pound of raw silk. If the chrysalis is permitted to pierce the cocoon and escape, the eilk can be used only for spun silk.

Cocoon perce's: Pierced or damaged cocoons whch cannot be normally reeled (also termed cocoon piques).

Cocoon strippings; Blaze; Keba: The first thread secreted by the silk worm when it finds a place to form its cocoon.

Cocoonage: Appliance used for mounting mature silkworms to enable them to spin cocoons.

Cocos Fibei: Same as **Coir.**

Cocuiza: A strong, smooth fibre, yielded by the leaves of the Furcraea gigantea in Venezuela; used for ropes, bags, etc.

COD: Chemical Oxygen Demand.

COD In G/Kg of fabric: Pollution Index.

Codilla: The scutching tow, a coarse byproduct or waste of the flax and hemp.

Codpiece: Pouch in the crotch of mens breeches used in late gothic and renaissance period.

Coefficient of friction: The ratio of the tangential force that is required to start or to maintain uniform relative motion between two contacting surfaces to the perpendicular force holding them in contact.

Coefficient of length variation: A measure of fibre length distribution. The standard deviation expressed as a percentage of mean length.

Coefficient of variation, (CV): A measure of the dispersion of observed values equal to the standard deviation for the values divided by the average of the values; may be expressed as a percentage of the average (CV%).

Coefficient of variation in unevenness: **(**Vu) The square root of the average of the squares of the deviation of linear density from the average linear densityexpressed as a percentage of the average linear density within the tested length of the strand.

Coeur fleuri: French ticking and linen, woven with small geometrical figures and bleached.

COFREET: Comite Francaise de l'Etiquetage pour l'Entretien des Textiles. French committee for care labeling.

Coffee: Having the colour of coffee.

Coffin cloth: Made with cotton warp and woollen filling in plain weave, dyed black; used for lining coffins and for shrouds.

Cognac: A pale brown; the colour of Cognac brandy.

Cogware: A coarse English woollen fabric of the 15-th century, made like a frieze.

Cohesion: The force that holds fibres together during yarn manufacturing or processing. It is usually a function of lubricant (type and amount) and fibre crimp.

Cohesion, in silk: The degree of agglutination of cocoon filaments forming raw silk thread, determined by subjecting the raw silk threads to friction in a cohesion tester and counting the number of strokes required to spread and open out constituent filaments.

Cohesive force: In sliver and top testing. The load or force required to overcome the cohesion of a lot specimen held in a fixed position between two slowly separating clamps.

Coiler: A delivery device that deposits a sliver in to a cylindrical can in the form of helical coils so as to permit easy withdrawal with the minimum of fibre disturbance.

Coiling: The depositing of sliver into cylindrical cans in helical loops. This arrangement permits easy removal for further processing.

Coir: Reddish brown, strong, stiff and elastic fibre, yielded by the outer shell of the coconut; used for mats, cordage, etc.

Colbertan lace: Coarse French lace named after Colbert, with ground of square meshes.

Colcothar: A reddish-brown iron oxide pigment; used as theatrical rouge and to polish gold and silver. See **Jeweller's rouge**.

Cold colours: As regards painting, those colours such as blue, green and grey suggesting coldness compared with **warm colours** such as orange, red and yellow. Cold colours appear to retreat towards the background. Also referred to as 'cool colours'.

Cold dyeing dyes: A term denoting any dye which can dye at room temperature. Reactive dyes of high reactivity like dichloro triazine type. Due to the high reactivity of these dyes it can be dyed in cold (Room Temperature) from an alkaline bath.

Cold pad batch bleach: Peroxide bleaching process characterised by a high concentration of hydrogen peroxide (> 40 ml/l) and a long reaction time (24 h). Underthese conditions, bath stabilisation is particularly important, and silicates, phosphates or organic stabilizers can be used for this purpose. Hot washing off with the addition of alkaline surfactants must be implemented in order to obtain absorbent fabric. Dwell time can be reduced (to 4–6 h) if a 1 minute steaming process follows storage. Peroxide-padder-dwell process.

Cold pad batch dyeing of reacive dyes: Principle: dye and alkali solution are prepared separately, and reach the padder trough only after passing through a mixer. Impregnated fabric dwells a few hours batched in open width, during which the dye is fixated. The so-called CPB pump is used as a metering, conveyance and mixing unit.

Cold peroxide bleaching: See **Cold pad batch bleach.**

Colibri: A bluish-green also known as 'humming-bird'.

Collapse Yarn: Collapse yarn is (usually) an over spun single, dried under tension (see **"blocking"**) that is then knit or woven. When the item is moistened, the yarn returns to its original elastic state. See **"balanced yarn"**.

Collar: (1) A neck band, upright or turned over a coat, dress, shirt etc.

(2) Band of lining, lace or other material which completes the upper part of a garment around the neck.

Collar (Banded): The visible or panel portion of the collar is cut separately and attached to the neckband portion. This is normal dress shirt construction.

Collar (convertible): The panel or visible portion of the collar and the neckband portion are cut as one piece, but folded once along the length to produce the appearance of a banded collar.

Collar (Lined): A collar made by placing a piece of interlining between the two pieces of body fabric.

Collar (one piece): A collar constructed from a single piece of fabric with the center fold forming the outer edge.

Collar (padding): Attaching the under-collar to canvas with several rows of blindstitching.

Collar (sandwich): A collar which has the top-collar inserted between the canvas and the under-collar.

Collar (topstitched): A collar with an added row of stitching along the folded edges.

Collar (two-piece): A collar formed by joining two identical pieces, inverting and sometimes topstitching along the folded edges.

Collar stand: That part of a collar whch joint the neck edge of the garment and terminates at the crease of the collar where the fall commences.

Collar velvet: Fine silk velvet of very short pile; used for collars.

Collar, Asymmetrical Straight Band: A straight band of fabric with the fastening to one side. There is a placket supporting the button fasten.

Collar, Bateau: A straight band placed on a wide neckline.

Collar, Bishop: A shirt-type collar with points extending into tab shapes and no fastening down the front.

Collar, Cossack: A narrow band around the neck that is fastened on one side. It is similar to the asymmetrical straight band.

Collar, Mandarin/Nehru: An Oriental collar that is a straight band, but that opens at the front and has curved edges. Also popular in India but generally the edges are straight rather than curved.

Collar, Peter Pan: A flat, curved shaped collar with no stand.

Collar, Polo/Turtle/Roll: A wide piece of fabric, usually knitted or cut on the cross, that folds back to form a roll neck collar.

Collar, Ring: A band of fabric that is shaped in towards the neck.

Collar, Straight Band: A collar made of a strip of fabric encircling the neck.

Collecting surface, in the rotor of an open end spinning: That portion of the internal surface of the rotor, often in the form of a grove, in which the fibres are condensed for assembly intom yarn.

Collette: Unbleached canvas of medium grade.

Colligative properties: Properties of a solution which are dependent on the number of solute molecules present.

Colloid: A substance of very fine particle size, typically between 0.1 and 0.001 microns in diameter suspended in liquid or dispersed in gas. Typically removable by reverse osmosis, distillation or ultrafiltration.

Colombe: The grey of the dove.

Colombiana: In the Philippine Islands worsted piece dyed lastings.

Colombo: Yarn Second grade of coir yarn; made in Sri Lanka; used for ropes and Mats.

Colloresine process: The two stage printing process for vat dyes is based on printing vat dyes from a thickener (originally Colloresine thickener DK) which undergoes coagulation on subsequent application of alkali and heat (steam). After printing and drying, the goods are padded with an alkaline solution

(sodium carbonate or caustic soda) of a reducing agent such as Rongalite C (sodium formaldehyde sulphoxylate) after which they are steamed, with or without intermediate drying, in a conventional steamer for 3–8 minutes. Due to the high degree of coagulation of the thickener, no marking-off or smearing of the printed colours occurs in the steamer even though the fabric is in contact with the guide rollers on both sides. This process has now been almost completely replaced by the more economical Flash ageing.

Colour: One aspect of appearance; a stimulus based on visual response to light, consisting of the three dimensions of hue, saturation and lightness. The particular appearance or attribute of anything visible to the eye varying according to the wavelength of light reflected from its surface to the viewer. Colours are seen by humans as combinations of the three **primary colours**. Colours are distinguished from each other by reference to **brightness, hue** and **saturation**; a particular hue, such as red or blue, also referred to as **chromatic colour** or **spectral colour;** the variety of tone or quality of the music of voices or instruments; a dye or paint or other substance whereby colour can be imparted; an appearance of truth or semblance of something, see **colourable; vividness, interestingness**.

(a) The characteristic of the visual sensation that enables the eye to distinguish differences in its quality, such as may be caused by differences in the spectral distribution of light rather than by differences in spatial distribution or fluctuations with time.

(b) As (a) above, but applied directly to the stimulus or the source (primary or secondary) giving rise to the sensation. (For brevity, the stimulus is often referred to as the colour).

(c) The property of an object or stimulus or quality of visual sensation, distinguished by its appearance of redness, greenness, etc., in contradistinction to whiteness, greyness, blackness (i.e. chromatic colour is contradistinctinve to achromatic colour).

Colour: The US spelling of the word ‘colour’. In British English spelling most compounds of the word ‘colour’ include the letter ‘u’ as in ‘colouring’, ‘colourless’ and ‘colourant’. However, some derivatives omit the ‘u’ as in ‘coloration’, ‘colorimeter’ and ‘decolorize’.

Colour (of an object): The particular visual sensation caused by light emitted by, transmitted through or reflected from the object.

Colour abrasion: Colour changes in localized areas of a garment due to differential wear, such as the knees of blue jeans. Often evident in cross-dye shades of blends where durable press treatments are applied. Colour abrasion is often called “frosting”.

Colour affinity: See **Dye affinity.**

Colour anomaly: Anomalous colour vision.

Colour attribute: A three-dimensional characteristic of the appearance of an object. One dimension usually defines the lightness, the other two together define the chromaticity.

Colour balance: The relationship between different colours in juxtaposition.

Colour bleeding: The loss of colour from the fabric to water, dry cleaning solvent or any other liquid medium when immersed in that liquid with subsequent colouring of that medium..

Colour blindness: The inability to recognise or distinguish any or all of the colours red, green and blue. Colour blindness affects males more than females in the proportion of 20 to 1. Whilst the human eye has red, blue and green **cones** almost all other mammals (the exceptions are apes and Old World monkeys) have only blue and green (or blue and yellow) **cones** although dolphins and whales cannot see the colour blue. Giraffes are unable to differentiate between yellow, orange and green and, apparently, horses, bulls, hedgehogs and mice, amongst others, cannot distinguish colour, having no cones in the retinas of their eyes. Parrots can group objects by reference to their colour. Total colour-blindness consists of **rod** vision with the ability to see only shades of dark and light with no perception of the colours of the **spectrum.** See **dichromacy, trichromacy, achromatopsia** and **monochromacy**. Severe form of Defective colour vision. There are two type of colour blindedness. (a) Partial colour blindedness, (b) Total blindedness.

Colour box: A rectangular trough-shaped container for print paste in a roller printing machine.Print paste is transferred from the colour box via a furnisher roller to the engraved printing roller and to the fabric as a print.

Colour change, as used in colourfastness testing: a change in colour of any kind whether a change in lightness, hue or chroma or any combination of these, discernible by comparing the test specimen with a corresponding untested specimen.

Colour change grey scales: These scales consist of five pairs of grey coloured material numbered from 1 to 5. Number 5 has two identical greys, number 1 grey scale shows the greatest contrast, and numbers 2, 3 and 4 have intermediate contrasts. After appropriate treatment the specimen is compared with the original untreated material and any loss in colour is graded with reference to the grey scale. When there is no change in the colour of a test specimen it would be classified as ‘5’; if there is a change it is then classified with the number of the scale that shows the same contrast as that between the treated and untreated specimens.

Colour code or coding: A method of indicating differences by the use of different colours in a large number of situations. Examples include, flags used for signalling in shipping; traffic signals; railway signalling; pavement and street markings; safety warnings on machinery and equipment; warnings on vehicles carrying dangerous substance; directional indications; sizes of clothes; the wiring of electrical plugs and teaching children how to read. An interesting application has been adopted in Gwynnedd Hospital in Wales where bracelets of different colours are worn according to whether patients wish to speak Welsh, English or both. Using colour and colour coding is a powerful method of enhancing memory. See also **colour wires, colour symbolism, compass colours** and **signal red**.

Colour combination: The conception of a scheme for the effective combining of different colours in design, decoration or clothing etc.

Colour computer: Together with a scanner, corrects hue and colour value in connection with an optoelectronic scanning process.

Colour constancy: The ability of a coloured object to give the same general colour impression which viewed under different illuminations, the observer having been chromatically adapted in each case.

Colour contrast, in textiles: A general term for a visible colour difference between two adjascent areas.

Colour coordinate system: Chromaticity diagram with the components of red (x), green (y), blue (z) as co-ordinates.

Colour co-ordinated: Particularly as regards clothing and home furnishings, all aspects effectively combining or harmonising in accordance with a **colour scheme** or plan.

Colour correction: An electronically controlled process which takes place on a scanner after colour seperstion with the aid of the colour computer.

Colour craft process: See **space dyeing**. Principle is based on an ombre dyeing of wool hanks (5–6 shades per hank circumferance) after dyeing the yarns are twisted to produce multicoloured effects with 40–50 shades.

Colour difference formula: See **colour difference**. A mathematical value is used to correct the variations in colour in colourimetry.Many formulas have been derived such as Judd formula, Nickerson-Stultz formula, McAdam formula, Friele MacAdam Chickering formila, Simon-Goodwin charts, Adam Nickerson Stultz (ANS) formula, CIELab formula, The CMC formula, the last two are the most used today.

Colour differences: Two identical colours will have the identical CIE tristimulus value X,Y and Z in the CIE colour coordinate system. Different

CIE tristimulus values correspond to two different clours. But the difference in colour coordinate may not match with the colour difference. Hence using a formula the defference in colurco-ordinates can be recalculated into one number that is a measure of the visual colour difference. This measure also is known as the colour difference DE.

Colour dynamics: The concept of the movement of colours. Charles Henry in his *Cercle Chromatique in 1889* regarded red as moving upwards, blue as moving to the left and yellow as moving to the right. Colours have often been employed as an indication of direction (North, South, East and West) particularly in Mexico although without any degree of uniformity. See also **colour symbolism** and **compass colours**.

Colour embossed finishes: (Emboss printing) also represent a valuable option for creating sophisticated designs.

Colour fastness: It refers to the resistance of a dyed or printed textile to various types of influenzes to which they are normally exposed during the manufacturing process and practical use like light, perspiration, atmospheric gases, or washing that can remove or destroy the colour. A dye may be reasonably fast to one agent and only moderately fast to another. Textile materials often must meet certain fastness specifications for a particular use. Colour fastness tests are done in the prescribed methods and assessed for changes in shade and also staing on undyed fabrics as described in th test method with the help of grey scale.

Colour fastness to acids: This fasness is for assessing the resistance to the effects of dilute organic or mineral acids. Three types are used with increasing severity of effect. The Standards apply to all fibre types. Treatment types: a) 100g/l crystallized tartaric acid; b) 300 g/l acetic acid 100%; c) 50 g/l sulphuric acid 60^0Bé. Acetate is only tested with a) and c). Acid dilutions are prepared with distilled water. Test samples are treated with two drops of the dilutions. Assess any change in colour after 10 min reaction time at room temperature. Assessment: grey scale/change of shade.

Colour fastness to burnt gas fumes G02: This method determines the resistance to fading of dyed fabrics to the nitrogen oxides produced during the combustion of butane. In the test the sample and control fabrics are exposed to the fumes of a butane burner in a test chamber. The test is continued until the control fabric has faded to a given extent. The sample is then assessed for fading.

Colour fastness to cross-dyeing: See **Fastness to cross-dyeing.**

Colour fastness to Chlorinated water (swimming-pool water): The specimen is agitated in a wash-wheel for 1h at 27°C in a weak solution of

sodium hypochlorite (either 20mg/l active chlorine for towels or 100 mg/1 for swimwear), dried and assessed for colour change.

Colour fastness to cross-dyeing: See **Fastness to cross dyeing.**

Colour fastness to degumming: See **Fastness to degumming.**

Colour fastness to dry-cleaning: The sample to be tested is enclosed in an undyed cotton bag with 12 steel discs. The bag is then agitated in a wash-wheel for 30 min in perchloroethylene at 30^0C. The specimen is then removed, dried and then assessed for colour change. The colour of the remaining solvent is also compared with that of unused solvent to detect any staining.

Colour fastness to dry heat: In order to test the colour fastness of dyes to heat setting, ironing and contact heat, The Fixotest apparatus (Heraeus) has been developed. The Fixotest involves examining the effect of heated metal surfaces on the textile dyes under investigation.

The test fabric is sandwiched between undyed adjacent fabric and then placed between the heated plates of the apparatus. After testing, the colour change and any transfer of the dye onto the adjacent fabric are assessed.

Colour fastness to hot pressing: This fastness test involves the assessment of the resistance of the colour of textiles to the effects Pleating and Setting in Dry Heat of Dyeing and Prints. Both the Draft ISO Recommendation and DIN 54060 describe the testing of dyes at three different experimental temperatures (150, 180 and 210ºC) over 30 s, in which the contact pressure exerted on the test piece is 4 ±1 kPa. These standards apply to synthetic fibres and blended fabrics containing synthetic fibres, but not to determining the colour change that occurs with synthetic resin finishing processes (permanent press process or thermosol process).

Colour fastness to milling: See **Fastness to milling.**

Colour fastness to nitrogen oxides GOI: This method determines the resistance to fading of dyed fabrics by gases produced during the combustion of gas, coal, oil, etc. In the test the sample is exposed to nitric oxide inside a special test chamber. At the same time a control sample is exposed and the test is allowed to proceed until this fades to a given extent. The sample is then assessed for fading.

Colour fastness to perspiration This method is intended for the determination of the resistance of the colour of textiles of all kinds and in all forms to perspiration. Composite specimens are treated in solutions containing histidine, drained and placed in a Perspirometer or equivalent apparatus. The specimen and the undyed cloths are dried separately. The change in colour of the specimens and the staining of the undyed cloths are assessed with standard

grey scales. Solutions 1 Alkaline solution, *freshly prepared,* containing 0.5 g histidine monohydrochloride monohydrate, 5 g sodium chloride and 2.5 g disodium hydrogen orthophosphate ($Na_2HPO_47H_2O$) *per litre,* brought to pH 8 with 0.1 N sodium hydroxide.

2 Acid solution, *freshly prepared,* containing 0.5 g histidine monohydrochloride monohydrate, 5g sodium chloride and 2.2 g sodium dihydrogen orthophosphate (NaH_2PO_4-$2H_2O$) *per litre,* brought to pH 5.5 with 0.1N sodium hydroxide.

Colour fastness to rubbing/ Crocking: This test is done basically to asses the ransfer of dye from one fabric o another while washing, wearing or any other use. "Crocking" is understood to be colour transfer from the surface of a dyed fabric to an adjoining fabric of the same type or to another surface by rubbing; "rubbing fastness" describes the dyeing shade change. A crockmetre is used for testing where the dyed fabric is rubbed against an undyed fabric either wet or dry (which rubs to and fro 10 times in 10 sec. over a distance of 10 cm with a load of 900 g). Hence there are two types of rubbing fastness, viz., Rubbing Fastness wet, Rubbing fastness dry. See **Rubbing fastness testing.**

Colour fastness to rubbing, organic solvents: This test provides an indication of the resistance of the shade to organic solvents on rubbing. Testing is carried out with the Crockmeter (which rubs to and fro 10 times in 10 s over a distance of 10 cm with a load of 900 g). A cotton rub fabric is wetted in the organic solvent and squeezed to 100% solvent content before carrying out the test. Dry in warm air (< 60°C). Both the change in colour and the degree of staining are assessed with the grey scales.

Colour fastness to salt water: See **Fastness to sea water.**

Colour fastness to Seawater: The composite specimen is wetted out in sodium chloride solution (30g/l) and placed in a perspirometer in an oven for 4h at 37°C. It is then separated, dried and assessed for colour change of the test fabric and staining of the adjacent fabric.

Colour fastness to soda boiling: See **Fastness to soda boiling.**

Colour fastness to water: In this test composite specimens are wetted out in distilled water at room temperature. They are then placed in a perspirometer in an oven at 37°C for 4h, removed and dried. They are then assessed for colour change of the test fabric and staining of the adjacent fabric.

Colour fastness to storage conditions (Colour fastness during storage): (1) Mainly used for Formaldehyde fastness, as formaldehyde from packaging causes colour change under certain circumstances. Less often for sulphur dyeings which split off sulphuric acid, and result in fibre damage. (2) Sublimation fastness during storage.

Colour filter: A thin layer of coloured glass or other transparent material which limits the transmission of certain wavelengths while allowing others to penetrate.

Colour forecasting: The selection of ranges of colours that are deemed to be those that will be wanted for a particular product/market at a particular time in the future.

Colour gate: This is a term for a retractable component in roller printing machines. The colour application unit (trough, doctor, counter doctor) is stored in the colour gate, thus reducing the machine set-up times and enabling the colour way to be changed more rapidly.

Colour grading: The act of identifying a specimen by a colour grade or colour score that is specific to the colour and the material graded.

Colour Index (CI): Well-known English reference book dealing with dyes (trade names, constitution), optical brighteners, reduction agents and developers. Publisher: Society of Dyers and Colourists. Each structure is assigned a name according to chemical composition. Each dye is assigned a number according to its class and shade. A correlating structure number is given when available. The Colour Index contains information on dye structures, classifications, manufacturers and processes. Many "pure" dyes, that is, dyes which are a single colour, rather than a mixture, have Colour Index names (for example, the reactive dye Turquoise MX-G is designated in the Colour Index as Reactive Blue 140). This name is normally independent of the manufacturer. The Colour Index is a multi-volume publication.

Colour intensity: Intensity is the strength of a colour. This may also be referred to as a colour's saturation or brightness. A pure hue can be fully saturated or less saturated without altering the hue itself, only its strength. Another important factor is the reflection of light from different fibres, yarns and fabrics. Fibres with high lustre such as silk – and the many man-made fibres that imitate the characteristics of silk – give the impression of full saturation; whereas opaque fibres, such as wool, generally give colours with less saturation.

Colour kitchen: Work room for the preparation of print paste thickening and the formulations of colour pastes. The way in which the colour kitchen is organised in many cases determines the productivity of the entire printing plant. Normally coloukitchen will consists of chemical store, dyestore, weighing area, dissolving plant, manual or auto dispensing unit.

Colour lakes: Metal-dyestuff compounds which arise e.g. during cationic dyeing and mordant dyeing processes or when developing dyes using metallic salts (Chroming of dyes). The low solubility of this type of compound and

their strong adhesion in or on the fibre determines the relative high fastness to processing and wear resistance of such dyes. Pre-prepared colour lakes are Colour lake substances.

Colour lamp, in colour determination of cotton with a colour Meter: A lamp with a specific energy out put function used in conjunction with special tristimulus filters to obtain a esired response function.

Colour location: (Colour point). The **Chromaticity** diagram includes colour locations of different Type of colour. Colour locations of the same shade are located on straight connecting lines between the achromatic point (= colour location of the physical ideal white) and the demarcations of the chromaticity diagram. As the hue moves away from the achromatic point, the colour becomes more saturated.

Colour measurement: Physical measurement of light radiated, transmitted or reflected by a specimen under specified condition and mathematically transformed into standardized colourimetric terms. These terms can be correlated with visual evaluations of colours relative to one another.

Colour meter: An instrument which measures the fibre sample colour as presented in the viewing window, in terms of the tristimulus values Y and Z and transmits these values to the IC/TC for further processing.

Colour model: A colour-measurement scale or system that numerically specifies the perceived attributes ofcolor. Used in computer graphics applications and by colour measurement instruments.

Colour order systems: Systems used to describe an orderly three dimensional arrangement of colours. Three bases can be used for ordering colours: 1) an appearance basis (i.e., a psychological basis) in terms of hue, saturation and lightness; an example is the Munsell System; 2) an orderly additive colour mixture basis (i.e., a psychophysical basis); examples are the CIE System and the Ostwald System; and 3) an orderly subtractive colour mixture basis; an example is the Plochere Colour System based on an orderly mixture of inks.

Colour quality: This is a term used in colorimetry for three-dimensional changes in direction of a colour relating to : Hue; Saturation; Lightness

Colour sample: (Sample pattern). Colour sample as per order for: Sample dyeing; Colour matching of dyed/printed samples.

Colour scheme: A combination of colours carefully selected, in particular, for furnishings, interior decoration, clothes etc to co-ordinate or, which when juxtaposed, appear to go well together. Research indicates that colour in the working environment exerts a significant influence on our working life. See, for example, **green room**.

Colour sensation: The characteristic of the visual sensation which enables the eyes to distinguish differences in its quality, such as may be caused by differences in spectral distribution of light rather than by differences in the spatial distribution of fluctuations with time.

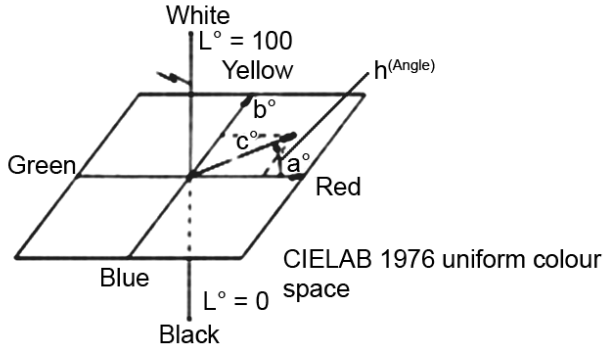
Colour seperation: (1) This is a process in the automatic production of colour separation from a multi-coloured sample with the aid of a scanner. After passing through a sampling drum, the coloured beam of light is captured by an optical head which disperses it via screens, prisms, interference filters and colour separation filters into 3 reference beams in yellow, red and blue.

(2) Transfer of individual colours from a colour submission to the printing rollers and/or screens from a pattern submission in textile printing. Manually prepared, it is a time-consuming operation. Resolution of the original pattern drawing as a pure contour film for each colour with the rest of the surface blacked out by hand painting.

(3) In screen printing, a seperate screen is required for each colour within the design. Colour seperation is the process whereby individual films are made for each colour. Colours may be seperated by hand or by computer to produce films with opaque areas where the colour is to be printed, and clear or translucent areas where the colour is not to be printed.

Colour simulator Represents hues for digital transmission that can be subsequently visualised or used as numerical values. Reproduction by numerical data on digital display.

Colour space: When colour is assessed on the basis of reflectance measurements, it is common to consider the three relevant attributes of perception of colour as hue, chroma (or saturation) which is the 'colourfulness' or richness of the colour, and lightness, which refers to the amount of reflected light. These three attributes may be described using the concept of colour



CIELAB 1976 uniform colour space

space, which shows the relationships of colours to one another and which illustrates the three-dimensional nature of colour. The day light colour of the opaque specimens are represented by points in space in terms of three colour scales: Reflectance Rd, and the chromaticity co-ordinates for redness or greenness +/-a, and yellowness or blueness +/-b.

Colour specification: Tristimulus values, chromaticity coordinates and luminance value, or other colour-scale values, used to designate a colour numerically in a specified colour System.

Colour splashes: Colour splashes due to the rapid lifting of a printing screen doctored with excessive printing paste. The cause is screen or fabric sticking, and the local splashing of printing paste on pulling loose.

Colour stability, in coated glass textiles: The ability of the applied coating to resist fading from exposure to sunlight and water.

Colour staining: The undesireds pick up of colour by a fabric: (a) when immersed in water, drycleaning solvewnt or similar liquid medium, that contains dyestuffs or colouring materials not intended for colouring the fabric, or (b) by direct contact with other dyed material from which the colour is transferred by bleeding or sublimation.

Colour stimulus: This is the luminous radiation recorded by the eye that, according to its energy distribution, stimulates the colour-sensitive cones on the retina. The eye functions as a grid-like arrangement of three types of receptive organs each having different spectral sensitivity (Eye sensitivity to hue, chroma and lightness). Expressed mathematically, the eye now operates in such a way that it multiplies the colour stimulus function for each wavelength by the corresponding CIE tristimulus values x, y, z and obtains the three effects caused by integration as colorimetric measure coordinates X, Y, Z (Colorimetric measures), which then combine in the perception of a uniform colour effect, the colour stimulus.

Colour strength: A measure of the ability of a dye to impart colour to other materials. Colour strength is evaluated by light absorption in the visible region of the spectrum.

Colour stripper: A chemical used to remove some or all of the dyestuffs from a fibre, yarn, or fabric so that a dyeing defect can be corrected, a shade lightened, or another colour applied.

Colour technologist: Anyone whose job it is to involve himself with the technicalities of colour in many different disciplines including paint mixing, dyeing, printing, film, television broadcasting and Internet web-site building.

Colour temperature: A measurement of the colour of light radiated by a black body while it is being heated i.e.,Thermal radiation, expressed in Kelvin.

This measurement is expressed in terms of absolute scale, or degrees Kelvin. Lower Kelvin temperatures such as 2400K are red; higher temperatures such as 9300K are blue. Neutral temperature is white, at 6504K. As the temperature increases, the waves emitted become shorter. The colour temperature scale covers the entire wavelength region from infrared to ultra-violet. Short wavelengths (bluish light) have a high colour temperature, long wavelengths (reddish light) a low colour temperature.

Colour transfer belt: Used in Vigoureux printing to transfer the print paste from the frame to the engraved roller.

Colour tolerance: This is an allowed colour deviation from a standard.

Colour trough: Contains the printing paste on printing machines or dye solution on dyeing machines. Usually made of copper or stainless steel.

Colour value: The value of a colour is its clarity or purity. Pure colours have no added white, black, or grey and are often termed as brights; whereas colours with an added amount of white are known as tints. Colours with an added amount of black are known as shades and those with an added amount of grey are known as tones and are often referred to as muted. The value of each primary, secondary and tertiary colour can be altered, according to the percentage of tonal value added. Values alone can be used as colours with no added hue and these are known as achromatics. Their generic names are white, grey and black. Grey may be of any combination of white and black and fashion names are often given, such as slate and silver.

Colour vision: Light entering the eye falls on the net-like arrangement rods and cones of the optic nerves (retina) causing Colour stimulus.

Colour way: (1) Colouration, colour effect. (2) Textile printing: colour composition with the number of colours determined by the design. Any required number of colourways can be produced per design.

Colour wedge: In flat-screen or rotary screen printing, a wedge of print paste is built by the action of the squeegee (Squeegee contact angle). The squeegee pressure is important in controlling the pushthrough of the colour wedge.

Colour wheel: The visible spectrum's continuum of colours arranged in a circle, where complementary colours such as red and green are located directly across from each other.

A circle of touching colours in a diagrammatic form. One particular circle used to help mix paints comprises 12 colours including the three **primary colours**, the three **secondary colours** and the six **tertiary colours** in the following order: **YELLOW**>yellow-green>**GREEN**>green-blue>**BLUE**>blue-purple >**PURPLE**>red-purple>**RED**>orange-red>**ORANGE**>yellow-orange.

Colour wheels are used to correct colours on scanners and monitors. Many wheels or colour circles have been devised including those of Sir Isaac Newton (1642-1727), Wilhem Ostwald (1853-1932), Johannes Itten (1888-1967), Johann Wolfgang von Goethe (1749-1832), Moses Harris (1731-1785), Ignaz Schiffermüller, Philipp Otto Runge (1777-1810), Ogden Rood (1831-1902) Albert Munsell (1858-1918) and Michel- Eugène Chevreul (1786-1889). See **Ostwald circle**.

Columbine: The colour of a dove. '*A kind of violet colour*' Samuel Johnson.

Colour yield; Tinctorial yield: The depthof colour obtained a standard weightof dye is applied to a substrate under specified conditions. Or quantity of dye fixed on the textile substrate in % by weight of the quantity of dye used.

Colour, wool: The actual colour of the wool. In industry a bright white to cream is most desirable; canary stains, brown or black stains are undesirable.

Colourant: Standard term for chromophoric materials. This includes dyestuffs, colour lakes, pigments, toners, waxes, phosphors.etc.

Colorant staining: The unintended pickup of colorant by a substrate due to (a) exposure to a coloured or contaminated liquid medium, or (b) direct contact with dyed or pigmented material, from which colorant transfers by sublimation or mechanical action (as in crocking).

Colouration: An arrangement of colours, in particular, the markings on animals; the appearance of an object as determined by the light emitted or reflected from its surfaces; to be distinguished from 'colour'.

Coloured: Having or possessing colour. The term 'coloured' used to describe people of African or Asian descent is offensive and politically incorrect. Although there remains uncertainty as to the correct terminology, the word 'Black' is used extensively in the UK. The preferred term in the USA for people of Negroid origin is 'Afro-American', the words 'Negro' and 'black' being no longer acceptable. See **dark-skinned**.

Coloured discharges: Printing done on dyed ground, where the dye used is dischargeable, with print paste containing reducing agents (e.g. Rongolite C) along with other dyes which is not affected by the discharging agent and can be fixed in the printing conditions will give coloured discharge on that dyed ground. Wherever motifs are printed with discharging agents only (no dyestuff) you will get white discharge.

Coloured fibre, in wool top: Any fibre the colour or shade of which differs from the normal colour or shade of the fibre mass of the sample.

Coloured resists: In contrast to white resists, where the ground dyeing or the ground printing isprevented from fixing locally, and the white ground thus emerges, in the case of coloured resists another dyestuff is simultaneously fixed at this point.

Colourimeter: (1) An optical measurement instrument that responds to colour in a manner similar to the human eye — by filtering reflected light into its dominant regions of red, green and blue.

(2) An instrument for measuring the concentration of a known substance in solution by comparing the liquid's colour with standard colours.

(3) A device that specifies colour by measuring the intensities of the three primary colours that compose the colour under study.

Colourimetry: Any technique for evaluating a given colour in terms of standard colours.

Colourist, in designing: Designers who predict colour trends and put together palettes of colours for specific seasons and product groups. Other colourists will work further down the design processline, colouring work produced by other designers to create different and alternative colourways.

Colourway: Alternative colouring of a design on paper or in/on fabric.

Colquhoun: A Highland tartan, consisting of the following: Black bar, dark blue bar, twice as wide, split by a pair of black lines in the center, black bar, narrow white stripe, two dark green bars, each as wide as the black, separated by a red line; a narrow white stripe.

Colthorp pride: A commercial variety of late maturing cotton from US; the staple measures 28–32 millimeters; the yield is 28–30 per cent.

Comaca: Silky, yellowish seed hair of the Bombax tree in British Guiana.

Comashes: A fabric mentioned in 17th century English manuscripts, as imported from Turkey; structure and composition unknown.

Comb doctor: Version of a Doctor roller, in which a flat doctor blade has comb-like indentations.

Combed top: Semi-finished product of Worsted spinning. Sliver-like web of parallel wool fibres obtained after passage through the so-called comber.

Combed sliver: A continuous band of untwisted fibre, relatively free of short fibre and trash, produced by combing card sliver.

Combed yarn: A yarn produced from fibres that have been carded (or prepared) and combed sliver.

Comber/brusher, in textile testing: An instrument which prepares the test beared of fibres for length, length infirmity, strength, and elongation

measurements by combing the test specimen to remove loose or unclamped fibres , and by brushing the clamped fibres to remove the fibre crimp and smooth the test beared of the fibre.

Combination fabric: A fabric containing: (a) different fibres in the warp and filling (e.g., a cotton warp and a rayon filling), (b) ends of two or more fibre in the warp and/or filling, (c) combination yarns, (d) both filament yarn and spun yarn of the same or different fibres, or (5 filament yarns of two or more generic fibre types. Combination fabrics may be either knit or woven. They should not be confused with blend fabrics. Although blend fabrics also contain more that one fibre, the same intimately blended spun yarn is present in both warp and filling.

Combination milling: Alkaline and then acid milling. Provides good felting and excellent handle. Alkali and acid resistant milling agents are necessary.

Combination process: Process in which two operating stages are combined (cost-saving). Examples: sizing + dyeing; desizing + bleaching; bleaching + optical whitening; bleaching + dyeing; shrinking + dyeing; non-crease finishing + dyeing.

Combination yarn: A piled yarn containing two or more yarns that vary in fibre composition, content, and/or twist level; or plied yarn composed of both filament yarn and spun yarn.

Combine fabric: Laminated Fabrics.

Combined heald and Hairiness: An arrangement in which the ends in a jacquard fabric that are producing a basic weave for ground can be controlled by healdshafts are operated by tappets or a dobby, while the ends that are figuring will be controlled by the jacquard. The system allows the jacquard to have a greater figuring scope.

Combing Process: Process by which the short fibre (noil) are separated from the long fibres and the latter are straightened out and laid parallel to each other. Combing wool is at least 1% inches long, of good strength and used for worsteds.

Combing wool: Wool that is strong and strictly of combing length, that is, 2in. (50cm) or more.

Combined fabric: (Laminated fabric) A material composed of two or more layers, at least one of which is a textile fabric, bonded closely together by means of an added adhesive, or by adhesive properties of one or more of the component layers.

Combing: A step subsequent to carding in cotton and worsted system processing which Straightens and parellelising of the fibres and extracts

neps, foreign matter, and short fibres, impurities by using a comb or combs assisted by brushes or rollers.. Combing produces a stronger, more even, more compact, finer, smoother yarn.

Combing Machine: Machine used for combing operation. See **Combing.**

Combing, Dry: The preparing and combing of wool to which no oil has been added.

Combing in Oil: The preparing and combing of wool to which oil has been added to facilitate the manipulation of the fibres.

Combing Wool: Wools having sufficient length and strength to comb. According to industry standards, the length of fibres for strictly fine combing must be over 2.75 in., with an increase in length as the wool becomes coarser.

Combi-squeegee: Combination of a magnetic pressure-application doctor roller and a print paste blade similar to a doctor knife in contact with it, the blade being attached to a print paste feed pipe. The combi-squeegee combines the advantages of both doctor types: effective nip and deep penetration. – Manufacturer: Joh. Zimmer.

Combourg ordinaire: Coarse French linen.

Combustible: Capable of burning.

Combustible textile: A textile that will ignite and burn or that will give off vapours that will ignite and burn when subjected to external sources of ignition.

Combustion: Combustion is the reaction of a substance with oxygen (generally in the presence of an oxygen concentration equal to that of air), whereby heat is generated with a consequent burning or Smoulder.

Combustion characteristic of fibres: See **The Burning Behaviour Of Textile**

Comeback wool: Yielded by the sheep which is the crossing of a half-bred ewe with a merino ram; this is an English trade term.

Comfort: Performance parameter of apparel referring to wearability. Encompasses such properties as wicking, stretch, hand, etc.

Comfort stretch: The term given to the freedom of movement experienced in the wearing of a garment that contains spandex, or has stretch engineered into a yarn through mechanical stretch construction.

Comforter: A bedcovering assembly, consisting of an insulating filler secured between two layers of fabric, used primarily to reduce heat loss.

Comfort finishes: Finishes applied to textiles composed of synthetic fibres to reduce the build-up of electrostatic charges and soiling, as well as to improve hydrophilic properties and soil release.

COMITEXTIL: Comité de Coordination des Industries Textiles de la CEE (Coordination Committee for the Textile Industries of the European Community), Brussels, Belgium

COMMENTEX: International Committee for Fabric Care Meetings, with headquarters in Paris.

Commercial allowance: An arbitrary allowance eaqual to the commercial moisture regain plus a specific allowance for finish formally adopted for use with the oven dry weight used in calculating the commercial or legal weight of a fibre shipment or delivery or making certain calculations.

Commercial composition- in wool: The percentage by weight of wool base moisture and other non wool base components in wool to which specific commercial designation is applied.

Commercial designation- In wool: A term applied to a lot wool in a stated form and having a specified commercial composition.

Commercial laundering: A process by which the textile products or specimens may be washed, bleached or dried and tpressed typically at higher temperatures, high pH and longer times than used for home laundering.

Commercial mass: Billed mass as determined by a generally accepted method or as agreed upon between the purchaser and seller.

Commercial moisture content: (in wool) The moisture calculated as a percentage of the weight of the wool , top, noils, yarn, fsabric etc. in the 'as is' condition; that is, containing whatever moisture , oil, grease, or other extraneous matter that may be present.

Commercial moisture regain: An arbitrary value formally adopted as the regain to be used with the oven dry weight when calculating (a) the linear density (b) commercial or legal weight of a shipment or delivery of any specific textile material (c) the weight of a specific component in the analysis of blends.

Commercial moisure regain: An arbitrary value adopted as the moisture regain to be used in calculating the commercial or legal weight of a fibre shipment.

Commercial Standards: "Recorded voluntary standards of the trade." Each country through their Bureau of Standards or other equivalent organisation issues Commercial Standards which are not laws, but are important as accepted voluntary benchmarks of performance and quality by the industry. These standards are usually referred to by number, and spell out test procedures and minimum performance guidelines.

Commercial weight: (1) In natural fibres, the dry weight of fibres or yarns plus the commercial moisture regain. (2) In manufactured fibres, the dry weight of staple spun yarns or filament yarns after scouring by prescribed methods, plush the commercial moisture regain

Commingled yarn: In aerospace textiles, two or more continuous multifilament yarns, the filaments of which have been intermixed with each other without adding twist or otherwise disturbing parallel relationship of the combined filaments. Usually consists of a reinforcing yarn, such as graphite or glass, and a thermoplastic matrix yarn.

Commission dyeing: Textile dyehouse which dyes textile fabric to the order of another firm without owning the fabric itself. Also called Commission finishing.

Commodore: Stout English navy drill.

Common: One of the U.S. Grades of wool. It is next to the coarsest grade, and derives its name because it presumably comes from sheep of common ancestry.

Common twill: An even sided four-harness twill weave, each thread passing over and under two threads alternately.

Compact spinning Process: A term generally referring to a spinning process carried out using any one of the several small spinning machines of compact design offered by equipment vendors as "packaged" units in which spinning and subsequent processing (drawing, crimping, cutting, etc.) are linked.

Compacted yarns: Air-jet interlaced yarns. Since the entanglement serves only as a substitute for twist, the degree of interlace or tangle is not as great as in air-jet bulked yarns.

Compacting (Shrinkproofing): Controlled residual shrinkage is an important quality parameter for many fabrics. For example, excessive shrinkage is undesirable for fabrics to be made into garments. Here, the residual shrinkage should be less than 2% otherwise the garment will not fit after it is laundered. Drapes cut to floor length will draw up from the floor and detract from their appearance unless the residual shrinkage is controlled. Before launching into the mechanical methods of reducing shrinkage, it will be instructive to discuss the causes of fabric shrinkage.

Compaction calendar: A compaction calendar has an adjustable gap between the pattern roll and bowl. This type of calendar is used to make filter media of certain thickness.

Compactor: A machine developed by Fabric Research Laboratories which is used to compact fabrics or to produce warp-stretch fabrics by means of forced crimp and/or shrinkage of the warp yarn.

Compatible shrinkage: A term used for bonded fabrics to indicate that the face fabric and lining have similar shrinkage. This is necessary to avoid puckering.

Compatibility, in textile dyeing: Propensity of individual dye components in a combination shade to exhaust at similar rates resulting in a buildup of shade that is constant, or nearly constant, in hue throughout the dyeing process.

Compensator roller: (dancing roller). Roller which moves up and down on movable bearings for equalising the tension on open-width piece goods between continuous operation finishing machines.

Complex machine stitch pattern, in sewing: A machine stitch pattern formed when two or more simple machine stitch patterns are combined in one repeating unit.

Complex seam: A seam made in two or more steps.

Complexing agent: (metal complexing agent, inactivating additive, sequestering agent, chelating agent). Products which are qualified by characteristic functional groups to change metal ions by Complex formation, and to improve their solubility in a specific medium. This occurs by the coordinative bonding of unwanted metal ions in the soluble complex in order to avoid metal precipitation in the liquor and on the textile product, and to dissolve metal compounds already deposited on the textile product.

Compliance: The ability of a fibre to yield under stress; the ratio of the change in strain to the change in stress that produces it; the reciprocal of the textile modulus.

Complimentary colour: If rays of light visible to the eye meet coloured compounds, the absorption of specific ray zones occurs out of the numerous light pulsations, and the coloured compound appears in its socalled complementary colour . Pairs of colours which are opposite each other on the **colour wheel** and which enhance each other, for example, red and green, yellow and purple and blue and orange. See **secondary colours**. Two complementary colours, such as blue and yellow, when juxtaposed produce a perfect contrast. A colour will appear most vibrant when juxtaposed with its complementary. Complementary colours always consist of one of the **warm colours** and one of the **cold colours** and either a **primary colour** and a **secondary colour** or two of the **tertiary colours.** See **split complementary colours**.

Complements: Two colours that create neutral gray when combined. On a colour wheel, complements are directly opposite from each other: blue/yellow, red/green and so on.

Component, in pile yarn floor coverings: The individual yarn or fabric elements into which a pile yarn floor covering can be separated.

Component: **in textile fibre polymers**: A polymer with distinguishable properties.

Component fibres: Consist of two or more different high-polymer types, e.g. Bicomponent fibres.

Component of variance: A part of total variance identified with a specified source of variability.

Components, for pile yarn floor coverings: The individual yarn or fabric elements into which a pile yarn floor covering can be dissected.

Composite: (1) An article or substance of two or more constituents, generally, with reinforcing elements dispersed in a matrix or continuous phase.

(2) Hard or soft constructions in which the fibres themselves are consolidated to form structures rather than being formed into yarns. Rigidity of these con structions is controlled by the density, the modulus of the load-bearing fibres, and the fraction of fusible fibres. Strength is cont adhesion and shear-yield strength of the matrix unless fibres are bonded in a load-transferring matrix.

(3) A structure made by laminating a nonwoven fabric with another nonwoven, with other materials, or by impregnating a nonwoven fabric with resins.

Composite fibres: Fibres composed of two or more polymer types in a sheath-core or side-by-side (bilateral) relation. See **Bicomponent fibres**.

Composite yarn: A yarn composed of both staple and continuous filament components e.g. core spun and wrap spun.

Composition cloth: Waterproofed cotton or linen duck; used for bags, covers, etc.

Compound fabric: (woven) a generic term for layered fabric in which separate layers or plies, each with its own warp and weft are produced simultaneously and stitched together in one weave process.

Compound feed: A feed mechanism comprising synchronized drop feed and needle feed.

Compressibility: Refers to the ease of reducing the bulk of fabric, carpet, batting, or other material. May be high or low, soft or hard.

Compression fabric: A high tenacity stretch fabric which, when in a close fitting garment, provides muscles with a firm compression fit that lessons vibrations, reduces fatigue, and keeps muscles energized. The fabric is usually made in a knit construction, using a series of gradient fibres with an open knit inner surface to create a moisture transfer environment.

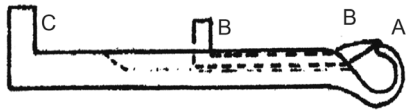
Compression moulded button: A button or button blank which is produced by compression moulding.

Compression moulding: The method of moulding of a material already in a confined cavity by applying pressure and usually heat.

Compression stretch: The name given to the expansive stretch that is created by the spandex fibres used in the development of a compression fabric.

Compressive shinkage: Mechanical process for applying a Pre-shrunk finish and reducing residual shrinkage in length in textiles. One of the factors affecting the suitability for purpose of a textile is its ability not to shrink when it gets wet or is washed. Dimensional stability is required. The shrinkage of woven and knitted fabrics is partly attributable to tensions imposed during the manufacturing cycle. These tensions are released in finishing.

Compund needle, Compound feed knitting: The needle is the basic element of loop formation. There are three most commonly used types of needle (picture 6): the latch needle (a) the spring-beard needle (b) and the compound needle (c) The compound needle includes (inside the internal groove of the stem) a sliding closing element, which opens and closes the hook through its upward and downward motion.



Computer colour matching: Instrumental colour formulation as colouring process based on recipe calculations using the spectrophotometric properties of dyestuffs and fibres. Necessary details concerning reflectance curves are obtained by measuring so-called calibration dyeings.

Computer aided design (CAD) systems: Computer softwarew that has been developed to assist in the designing process.

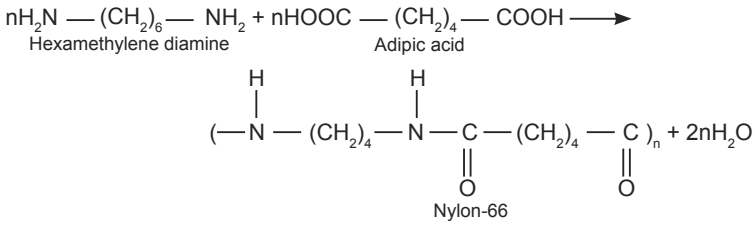
Concept selling: This is where products are sold on a lifestyle basis.

Con tallies: Inferior French silk, made of floret silk.

Condensate: Water obtained through evaporation and subsequent condensation. It can be applied to other liquids also. Normally the water resulting from condensing plant steam originally generated in the boiler. Water condensed in a water still is called distillate.

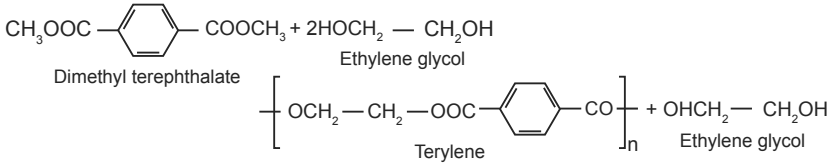
Condensation polymer: A polymer obtained when the compounds used in its formation react together, with the elimination of a further compound such as water, formaldehyde or hydrochloric acid. The reaction is called cond. ensation and the product formed is called condensation polymer. As the process involves the elimination of by-product molecules, the molecular mass

of the polymer is not the integral multiple of the monomer units. For example, nylon-66 is a condensation polymer of hexamethylene diamine and adipic acid.

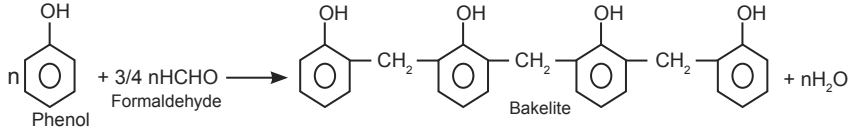


Some other examples of condensation polymers are:

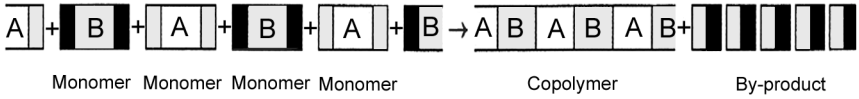
Dacron or Terylene (Polyester): It is a polyester fibre, made by the esterification of terephthalic acid with ethylene glycol. In places, it is known as terylene, whereas in some other places it is called decron.



Bakelite: It is a polymer of phenol and formaldehyde.



Condensation polymerization: A polymerization process yielding a product in which the repeating unit has fewer atoms that the monomer or monomers. Generally, the separation of Condensation Polymerisation (schematic) water

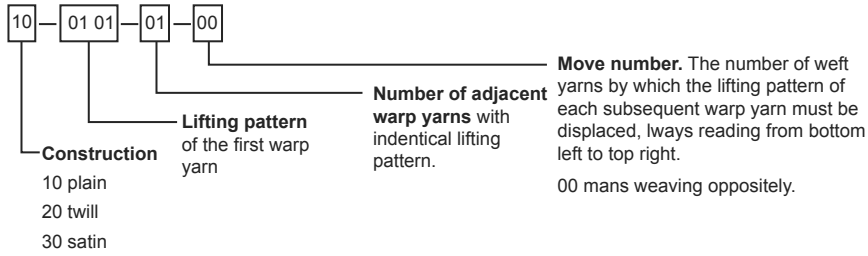


or some other simple substance occurs as a result of the reaction, e.g., ethylene glycol in polyester production.

Condense dye: A dye which during or after application, reacts covalently by itself or other compounds other than substrate, to form a molecule of greatly increased in size.

Condensed card: A roller and clearer type card as distinct from a flat card which converts fibrous raw material to slubbing by means of a condenser.

Condensed notation in waeving: See **Patter draft.** Pattern Drafts also can be represented numerically. A new system of notation codifies information of the weave type, warp lifting pattern, no. of ends lifting together, and the move number. Suitable for EDP.



Condensor roving waste: Waste produced during the process of condenser carding and also in the roving process.

Condensor spun: Description of yarn spun from slubbings.

Condenser yarn: (1) Low grade cotton yarn (waste yarn) in high linear densities usually made from East Indian (Bengal) cotton (Imitation yarn).

(2) Generally, woollen yarn produced by the socalled double condenser spinning process, spun from roving collected from strips of card web by rubbing in a tape condenser.

Condition: See **Condition, conditioning.**

Condition, Conditioning: Bringing of a specimen or testing material to moisture equilibrium with a specified atmosphere.

Condition, standard: See **Standard condition.**

Conditional bundle system, garment: A production system in which bundle pass from storage to a operator and then back to storage for allocation to the next operation.

Conditioned weight (Silk): The weight of raw silk obtained by adding to itd oven dry weight, 11 per cent of the oven-dry weight.

Conditioner tube: A tube supplied with steam or hot air surrounding a melt spun threadline and located between extrusion and wind up whose purpose is to control the fine structure of the yarn.

Conditioning: A process of allowing textile materials (staple, tow, yarns, and fabrics) to reach hygroscopic equilibrium with the surrounding atmosphere.

Materials may be conditioned in a standard atmosphere (65%RH, 70°F) for testing purposes or in arbitrary conditions existing in manufacturing or processing areas.

Conductive textile materials: Conductive textile materials are textiles with conductivity. These textile materials are used for intercepting electron waves or for a fuel cell's electrolyte film. Conductive textile materials let electrons and ions go through, just like an electric wire. Conductive textile material is basic and essential to the growth of smart-wear technology.

Conductivity: The property of a substance's ability to transmit electricity, say water. Measured by a conductivity meter, and described in microSiemens/cm.

Cone: (1) Are used for changing the cones of conical cross-wound bobbins, e.g. to replace stainless steel cones with cardboard cones for further processing.

(2) The yarn package obtained when the yarn is wound on a disposable cone core.

(3) Light sensitive cells in the retina of the eyes of many vertebrates providing the means of detecting colour. They contain pigments and respond to bright light whereas rods respond only to dim light. There are over 5 million cones in each human eye, but relatively few blue cones so that, for example, blue text placed on a black background is particularly difficult to read. See also **colour-blindness**.

Cone holder: It allows ends from multiple cones to be wound at the same time. A screw eye, hook, or other device directs each thread so it unwinds above its cone without upsetting the cone or becoming tangled with threads from other cones.

Cone mill: Dye kitchen device for mixing and milling printing thickener and prepared printing pastes.

Coney (Rabbit): A soft, long-haired cheap fur, oftenused to imiytate more expensive ones. Not hard wearing.

Confidence interval: An interval estimation of a population parameter computed so that the statement " the population parameter lies in this interval "will be tue, on the average, in a stated proportion of the times such statements are made.

Confidence Level: The stated proportion of times the confidence interval is expected to include the population parameter.

Confidence limit: The two statistics that define the ends of a confidence interval.

Conformance, in testing methods: The agreement of test results of a specimen with requirements of a specification.

Conglomerate: (Lat.). Mixture of numerous individual particles, mainly of different or similar types.

Congo red: Red direct dye (Böttger 1884). Benzidine-bis-1-naphthylamine-4-sulphonate

Congo red paper: Colour indicator on acid traces, colour change interval pH 3 (bluish violet) to 5.2 (reddish orange, brownish).

Congress canvas: Strong, open face cotton or woollen canvas made of hard spun thread; used for embroidery.

Coning: The transfer of yarn from skeins or bobbins or other types of packages to cones.

Conjugate fibre: A two-component fibre with specific ability to crimp on hot or hot/wet treatment because of differential shrinkage.

Conjugate yarn: A yarn made from conjugate filaments.

Conker-coloured: Reddish-brown (used in *The Evening Standard* 12.8.99 to describe leather boots).

Connecting ring, In Zipper: A device shaped like the letter'D' used to secure special pull having mor than one component in its design, to bail or lugof the slider.

Connaught: Open cotton canvas for embroidpry; See **Basket Cloth.**

Connaught yarn: Soft, fine, loose woollen yarn for knitting: made originally in Ireland.

Conservation: The examination, preservation and restoration of cultural objects of cultural objects with minmal sacrifice of their and historic integrity.

Conservator: A person whose activity involves the science, technology, and documentation associated with the conservation of cultural objects.

Consignment: All the material of a specific type and quality received by a customer against a particular order.

Consistency in wool: The uniform distribution of all the fibre characteristics within each lock and throughout the entire fleece.

Consolidation: Application of heat and pressure to form composite structures.

Consolidation dimensional change: See **Dimensional change, consolidation.** The dimensional change that occurs when a fabric is gently agitated in water to overcome all the frictional constraints in it after it has been allowed to relax in water without agitation.

Constant-Rate-of-extension tensile testing machine (CRE): A tensile testing machine designed in such a way as to keep the rate of increaseof length of the specimen is uniform against time during the testing process**.**

Constant-rate-of-load tensile testing machine (CRL): A tensile testing machine designed in such a way as to keep the rate of increaseof the load being applied to the specimen is uniform with time during the testing process.

Constant-rate-of-traverse textile testing machine (CRT): A tensile testing machine in which the pulling clamp moves at a uniform rate and the load is applied through the other clamp which moves appreciably to actuate a weighing mechanism, so that the rate of increase of load or elongation is dependent upon the extension characteristic of specimen.

Constitution: A variety of corduroy, having broad races.

Constructed textiles: Includes woven textiles, knitted textiles, laces and carpets.

Construction, in weaving: The pattern of interlacing of warp and weft yarns is called a cloth construction.

Constructional units, in pile floor coverings: The needles, pitch, rows, shot etc. into which the warp and weft yarns are commonly grouped.

Constructive avoidance: Time spent on work that is neither important nor urgent, in preference to urgent and important work.

Consultant designer: Designer employed by a company usually on a part-time basis to advice on design matters.

Consumer care: of consumer textile products, cleaning and maintenance procedures as customarily undertaken by the ultimate user.

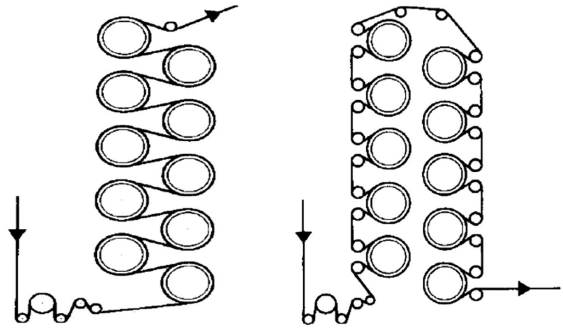
Consumer's risk: in acceptance sampling, the probability of accepting a lot when the process average is at the limiting quality level.

Consumer textile product: A textile product intended to satisfy human wants and needs. Textiles not falling into the categories of apparel, furnishing, household and industrial; tents back packs may be referrd to as consumer textiles, awnings, umbrellas, and luggage are also often classed in this category.

Contact angle: The angle between the surface of a liquid and the surface of a partially submerged object or the container at the line of contact. The smaller the contact angle, the greater the wettability of the solid.

Contact drier: The most common example of contact drying is Drum dryer (also called can driers, cylinder driers etc). With this system, the fabric moves

forward arranged on several heated drums. The drying temperature ranges between 120-130° C and the cylinders are heated Cylinder drier with fabric



contact on both or one side by means of steam at a pressure of 1-3 atm. This very efficient and low-cost drying system is particularly suitable for flat fabrics, with slightly evidenced structure, which cannot be easily affected by tension during feeding. Used for intermediate drying and for light finishes; this system is not suitable for durable thermosetting resin finishes. See **Contact drying**.

Contact drying: Drying is implemented here by contact with heated cylinders or plates. High temperature contact process; Drying systems.

Contact printer: In the half-tone process, the screen, which is necessary for better adhesion of the printing paste in the engraving, and for preventing the doctor blade from "dipping into" the engraving, is produced either in photography by inserting a glass/engraving contact screen, or by direct use of contact screen films, or also by screen films on a contact printer. See **Half-tone screens.**

Container: A receptacle designed to hold a material, or to give integrity to the material.

Continuous ager: So-called continuous ager for printed fabrics and large-scale roduction, mainly for short or long steaming times. There are various steamer chamber designs, e.g.:

(i) Fabric transport by means of running rails or a few larger diameter idling rollers in the case of festooned fabrics (festoon steamer), especially for screen printing. (ii) With guide rollers top and bottom as a rapid steamer (flash ager). (iii) Similar to I, festoon design but with a continuous pin chain, as a screen print festoon steamer.

Continuous cure, in garment making: A method of curing durable press garments which uses a moving conveyor system to carry garments into and out of the curing oven. Also known as continuous oven.

Continuous decatizing: Dry decatizing The continuous decater has one steaming cylinder and one cooling cylinder. An endless decating apron carries the fabric around the steaming cylinder and around the cooling cylinder. The fabric is continuously moving so the time element of the process is affected by the speed of the machine - being somewhat less than the batchwise semi-decating process. Nonetheless, excellent results are obtained on many fabrics. The fabric is exposed to steam in either expanded or cooled form (suction principle) or controlled humidity is applied to the cloth in the treatment zone and this is converted into steam by applying pressure and heat.

Continuous desizing: Suitable for woven cotton and blended cotton/synthetic fabrics. Although enzymatic starch decomposition is time-consuming, continuous desizing can be effected with bacteria-diastases (other amylases are unsuitable): fabric is impregnated with hot enzyme solution and deposited in a heated J box for 3–5 min. Liquid absorption must be high (100% and over).

Continuous dyeing: A process by which a fabric is continuously dyed by a suitable method. Examples are pad-dry, pad steam method of dyeing of vats, reactives, sulphur on cotton, E-control dyeing of reactives on cotton, thermosol dyeing of disperse dyes on polyester or polyester/cotton.

Continuous dyeing Plants: Depending on class of dyestuff, they comprise padder, dryer (cylinder, hot flue dryers), continuous steamer and open-width washing machines. Continuous dyeing range: Machinery range for padding, setting/steaming/drying, wash-off of suitable dyestuffs (e.g. disperse, vat and reactive dyestuffs) in correspondingly large dye batches for increased productivity and economy in dyestuffs, chemicals and energyusage. Process generally uses a liquor ratio of 1:1, i.e. the pad-liquor pick-up = 100% = 100 kg dye liquor/100 kg fabric.

Continuous element: A configured element formed continuously along a length of monofilament.

Continuous element Zipper: A zipper consisting of two continuously formed elements, each attatched to one of the opposing edges of two tapes, which are engaged and disengaged by the movement of a slider.

Continuous filament: See **Filament.**

Continuous filament yarn: See **Filament yarn.** A yarn composed of one or more filaments that run essentially the whole length of the yarn.

Continuous filament yarns, in glass textiles: A strand made from shortpredetermined lengths of cut continuous filament and used as a reinforced material.

Continuous filament yarn: A yarn made of filaments that extend substantially through out the length of the yarn.

Continuous open width range: An open width processing machine where many processes can be done continuously. Basically it is many machines joined together which can run continuously.

Continuous polymerization In polymer manufacture, linkage of the various stages of polymerization so that materials flow without interruption from the addition of raw materials to delivery of the finished polymer from the system. Extrusion as film, chip or fibre may be linked to a continuous polymerization line. Because there is no break in the process while the transition from low molecular weight to high occurs, multiple stage reaction vessels may be required and accurate process control is critical.

Continuous rope treatment plant: A range for the continuous pretreatment, bleaching, dyeing and aftertreatment in rope form, preferably of cotton knitted fabrics.

Continuous steamer: See **Continuous ager.**

Continuous systems: The operations are carried out by means of a series of machines; every machine carries out always and solely the same process. Every machine is assembled according to specific production requirements. A system like this entails high start-up costs and a complex setup but once the system has started, it requires a smaller staff and grants excellent repeatability and high output rates; continuous systems are therefore suitable for manufacturing large lots of products with the highest cost-efficiency.

Continuous variate: A variate that is a measurement based on a scale that is assumed to be continuous.

Continuous yarn felting: A process where by slivers, rovings, slubbings are felted on a continuous basis. This is achieved by passing wool-rich material through a unit where it is agitated in an aquous medium where the felting takes place. The process is used to produce a yarn or consolidate a spun yarn.

Contouche: Women's outer garment for house, street and travel wear; fully tailored with deep folds at the back (Watteau pleats)

Contour stitching: Automatic sewing along or near the edge of a garment part. The shape may be predetermined or edge following.

Contour surface: See **Hand of fabric.**

Contract carpet: (Fitted carpet, wall-to-wall carpet, textile floor covering). Textile floor covering in the form of fitted carpet (usually wall-to-wall carpet) in widths or carpet tiles (glued or self-adhesive) or as fitted carpet.

Contract cloths: A name for "uniform cloths".

Contract furnishings: Funishing used in offices and public buildings such as schools, hotels and hospitals etc.

Contract textiles: Sometimes also termed uniform textiles, or named according to their intended end-use. Collective term for all trouser, blouse, jacket and coat cloths for authorities such as postal, railway and customs services, armed forces, police etc.

Contraction: See **Take up, yarn; Take up, twist.**

Contrast: The level of variation between light and dark areas in an image.

Contrast colour: See **Complimentary colour.**

Contrasting colours: Colours opposite to each other on the **colour wheel**, for example, red and green; blue and orange. See **complementary colours**.

Control under cover garment: A garment having a known history, the performance of which in a specific end use has been established previously and which is used as standard of comparison.

Control limits: Predetermined ranges based on the variability of past observations between which the instrument data for a test must fall to be considered valid.

Control textile: A textile having a known history, the performance of which in a specific endues has been established previously, and which is used as a standard of comparison.

Controlled colouration: In order to meet the demand for shorter lead times, a radical change in philosophy has developed in which an expectation of Right-First-Time production through the control of the coloration process is now the norm for progressive dyeing operations. Efficiency of production, elimination of the cost of non-conformance (whilst minimising the impact on the effluent loading) has led to the development of "Controlled Coloration." Controlled Coloration is the fusion of three technologies viz. dyestuff technology, application technology and management technology which must complement each other.

Convent: Plain woven woollen dress goods with two or three-ply warp and single filling, made in solid colours and in stripes, mixtures, etc.

Convent cloth: A very light dress goods, made with wool warp and silk filling, having a pebbled face.

Conventional allowance: The percentage, that in the calculation of commercial weight and yarn count or linear density, is added to the oven dry weight of the textile material, which has been previously washed off all the finishing. For such material conventional allowance is arbitrarily chosen according to commercial practice and includes the moisture regain and the normal finish that is added to impart satisfactory textile qualities.

Conventional blanket: A blanket woven in either a plain or twill weave that is napped on both sides.

Converted fabric: A finished fabric as distinguished from greige fabric.

Converter: An individual or organization which buys greige fabrics and sells them as a finished product to cutters, wholesalers, retailers, and others. The converter arranges for the finishing of the fabric, namely bleaching, mercerizing, dyeing, printing, etc., to the buyers' specifications.

Converting (conversion): The production, from a filament tow or tows of a staple sliver in such a way that thje essentially parallel arrangement of the filament is maintained.

Conversion print: Multi-colour overprint, e.g. produced by means of overprinting rollers, where colour change is achieved by the overprint print paste taking over the development and fixation of the pre-print print paste, places not overprinted therefore remaining colourless, and, without pre-printing, patterns of the second print paste developing in the intrinsic shade of the second colour print. These kinds of patterning effect presuppose dyes which can be mutually resisted and discharged, and also possess different development and fixation characteristics.

Conveyor belt shrinking machine: To relax woven or knitted fabric, the fabric is placed on a perforated conveyor belt, which runs through a tunnel. Vibrating elements or bursts of steam keep the fabric appropriately moving.

Conveyor drier: Circulating air drier as (a) drier for loose material which is carried through the drying room on brattice conveyor; (b) piece goods drier, in which the goods are carried through the drier on a conveyor belt. Particularly for knits and other cloths in piece form that are susceptible to tension.

Convict stripes: Cotton fabrics made in England for the export trade; have one inch wide filling tripes in black over white ground.

Convolution: (1) An irregular spiral or twisted condition characteristic of mature cotton fibre. It is visible under a microscopic. The finer fibres are generally more twisted than the coarser fibres.

(2) Coil and curl in certain types of textured yarns which provide bulkiness to the yarn.

Cooker's waste: Waste produced during the cooking or boiling of cocoons. It forms major part of (floss) waste produced during reeling. It is used in the spun silk mills.

Cooking (Silk): The process by which the silk cocoons are treated in boiling water for a short time with a view to softening the filament for easy unwinding during the subsequent reeling process.

Cooking salt: See **Sodium chlorite.**

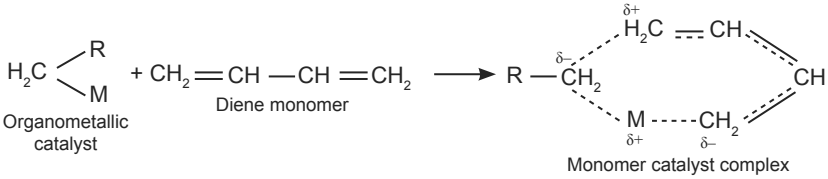
Cool colours: See **Cold Colours** and compare with **warm colours**; distant colours such as blue, green and violet which appears to move away from the viewer and recede into the background. See **advancing colours.** Also referred to as 'soft colours'.

Cooling cylinder: An open or closed cylinder filled with water, over which the cloth is passed through to accelerate cooling.

Co-ordinating designs: Designs developed to be used together. Sometimes these will contain similar motifs but on different scales; usually the same colour palette will be utilised through out. Groups of co-ordinates are often developed and presented as a 'story'.

Coordination Polymerisation: In coordination polymerisation reactions the monomer molecules used are generally dienes and olefines. These reactions are catalysed by organo-metallic compounds. In such polymerisation, a monomer-catalyst complex is formed between the monomer and organometallic compound. A coordination bond is used between a carbon atom of the monomer and the metal atom of the catalyst, thus formation of monomer-catalyst complex takes place. The polymerisation process proceeds as follows:

where, M = Transition metals such as Ni, Cr, Mo, V, Ti or Rh.



Coothay: East Indian satin made with coloured stripes.

Cop: (1) Term used for a yarn package spun on a spinning frame/ mule spindle. The package generally has tapered ends (Biconical package) and is cop-wound. (2) A headless tube upon which yarn or thread is wound. (3) Filling yarn wound upon a tapered tube(generally paper)

Cop tube: Tube onto which a Cop of yarn is spun, of cylindrical or slightly tapered form or as a former for a "hollow cop" with or without base. Cops used to be made in cardboard, alloy and steel, either varnished or unvarnished. Nowadays plastics-coated steel, some with textured surface (smooth, matt, grooved, "orangepeel").

Copenhagen blue: A bright purplish blue; a light blue. Also referred to as 'copen blue'.

Copolycondensation: In polycondensation reaction, a pair of difunctional monomers is brought about to produce a homopolymer. Whereas in copolycondensation reaction, reactants are more than a single pair and resulting in a copolymer.

If A and B are functional groups capable of undergoing condensation reactions, the simple polycondensation and co-polycondensation can be shown as follows:

In simple polycondensation reaction:

$$\text{A -R-A+ B-R'-B} \sim \text{A -R-AB-R'-B + Byproduct}$$

In co-polycondensation reaction :

$$\text{A -R-A+ B-R'-B+A -R''-A} \sim \text{A -R-AB-R''-BA -R''-A+ Byproduct}$$

Copolymer: A polymer in which the repeating units are not all the same. Polymers consisting of two or more Monomers (Copolymerization) for creating new product characteristics. Usually, but not always, copolymers are formed from two or more starting materials.

Beads of different kind (representing monomers of more than one chemicals)

Representing co-polymer molecule

In copolymers (a) Alternating copolymers possess regularly alternating monomer residues, (b) Periodic copolymers have monomer residue types arranged in a repeating sequence, (c) Random copolymers have a random sequence of monomer residue types, (d) Statistical copolymers have monomer residues arranged according to a known statistical rule, (e) Block copolymers have two or more homopolymer subunits linked by covalent bonds. Block

copolymers with two or three distinct blocks are called diblock copolymers and triblock copolymers respectively.

Copolymer fibres: (multipolymer fibres). Synthetic fibres manufactured according to the principle of Copolymerization. They are produced for the purpose of achieving or enhancing specific properties e.g. dye affinity, hydrophilic/hydrophobic characteristics, thermostability, etc. Important examples include modacrylic fibres, modified polyvinyl chloride fibres as polyvinyl chloride copolymers and polyvinylidene-dinitrile fibres.

Copolymerisation: Many monomers can form polymers not only with monomers of their own type but also with other monomers. This opens up the range of possibilities enormously. For example, radical polymerization converts styrene to polystyrene, methyl methacrylate to polymethyl methacrylate and vinyl acetate to polyvinyl acetate.

Copper chelation value (CuCV): The milligrams of copper sulphate pentahydrate chelated by one gram of a chelating agent or product containing a chelating agent.

Copper-green: A generic name for green pigments made from copper including **Scheele's green**, **chrysocolla**, mineral green, **Montpellier green**, **verditer** and verdigris.

Copper number: Expression of the degree of damage especially of overbleached fabrics (Oxycellulose), which have not been boiled during or after bleaching. Principle: determination of reductive capacity by treating the test specimen with Fehling's solution, dissolution of the deposited cuprous oxide, and titrimetric determination as to how much copper has been precipitated on 100 g of test material: unchanged cellulose (copper number) 0.2–0.3, pure oxycellulose 14.2.

Copper Sulphate: $CuSO_4$; also called copper (II) sulphate (read copper two sulphate) or cupric sulphate. A copper compound sometimes used as a mordant, especially with natural dyes. Certain direct dyes are made more lightfast by after-dyeing treatment with copper sulphate.

Coppering: Copper sulphate after-treatment of direct dye dyeings mainly to improve fastness properties.

Coppering dyes: Direct dyes which have to be after-treated with copper salts in order to achieve the correct shade. See **Aftercoppering dyes.**

Copper-plate printing: A method of intaglio printingthat uses engraved copper plates.

Copper sulphate after treatment: Of direct dyeings, for the purpose of significantly improving light fastness, and mainly at the same time too the washing fastness of appropriately suitable dyeings (Aftercoppering dyes).

Coppery: Incorporating a coppery hue as in 'coppery-brown…. flowers'.

Coptic clothes: Various linen, woollen and mixed fabrics, formerly used as mummy wrappings and recovered from old Egyptian tombs. The weave is plain or twilled, the latter often showing striped and geometric designs.

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Coquelicot: The red of the poppy; brilliant red; a colour term used by Jane Austin. Also called **ponceau**.

Coquita: Strong bark fibre, yielded by the Jubaea spectabilis, a palm tree in Chile; used for ropes.

Corabell: A light orange coral colour tinted with crimson.

Corah: East Indian light, washable silk dress goods of natural cream or white colour.

Coral: A deep pink or reddish orange.

Coral pink: A deep orange-pink; sometimes a medium pink or a yellowish pink.

Coral red: Bright red or a deep pink.

Coral stitch: In embroidery a stitc.h having a stem from which short and paraaiel branches start out at an angle.

Coralline point: Italian needle-point lace, similar to the Venise point, having coral like trailing patterns.

Coram: Bleached German linen, made very stout of heavy warp and finer filling.

Corbeau: Dark green.

Corinthian pink: A purplish pink.

Cork: A beige colour.

Corkscrew twills: A special group of interleaved twill called corkscrew twills are usually woven with an odd no. of shafts so that the cloth will be either warp faced or weft faced twill and also not an even twill.

Corckscrew-worsted goods: So-called from its fancied resemblance to the twists of the corkscrew.

Cord: (1) Term applied to woven rib fabric with weft yarn floats creating pronounced cord-like raised lengthway ridges; a plain fabric without pile warps or pile weft (contrast with Corduroy).

(2) String-like round braid (Braid), in contrast to tape braid. Cord tape braid: tape braid edged with cord.E.g. Paracute cords.

(3) (a) The product formed by twisting together two or more plied yarns as used in tyres. (b) A rib on the surface of a fabric (e.g., corduroy and whipcord.)

(4) Characteristic woven rib running the length of the material worsted or wollen yarn in the warp and wollen yarn in the weft. Cotton is also used as the warp threads . For sports and leisure wear.

Cord, in zippers: A strand of of multiple yarns for use in forming a bead.

Cord, of glass fibre: A strand made by combining multiple ends of filament yarns , including cabled yarns, primarily for structural applications.

Cord carpet: A low level loop pile carpet with pronounced rows of loops in the weft direction.

Cord de Chine: A lightweight fabric of botany warp and eilk filling; two warp ends are in each reed, forming cords.

Cord fabric: Cord fabric should not be confused with corduroy. It is woven in plain weave the cord effect in warp direction is given by a rib weave. A typical construction is 90 × 60. In the warp there can be 6 ends of 30s running in plain weave, then there can be 4 ends of 2/40s running parallel to form the cord. This pattern is repeated in the full width of the fabric. The filling is 35s count. There can be a lot of variations as the corded yarn can be put white and the other yarns can be put black and also in the weft white so that the cord will be standing out as white. Also in the weft sometimes textured yarns can be used. It is used as mens and women's wear. The same name is used for industrial fabric made for the production of tyres. This cord fabric consists of heavy cable yarn held together by a few picks of filling. A charactewristic construction is 20 × 3. The warp may consist of 3/5/22s (i.e. 3 ends of 5/22s twisted together. Nowadays high tenacity filament rayon or nylon is used. See **Bedford cord.**

Cord Stitch: In embroidery and needle laces, a thread twisted around by another thread.

Cord twist: The amount of twist in a cord made from two or more single or plied yarn. Cord, in Zipper.

Cord, steel: A formed structure made by twisting together two or more steel filaments or steel strands.

Cord, tyre: A twisted or formed structure composed of two or more single or plied industrial yarns. Each individual single or plied yarn element in a cordhas some nominal twist, direction of twist, length and tension. The direction of twist used to combine the single or plied yarn elements into a cord structure is in a direction opposite to that used in the yarns.

Cord twist: The amount of twistin a cord made from two or more single or plied yarns; expressed in turns per inch/metre.

Cordat: (1) Strong French canvas, made of tow; (2) Heavy, all-wool coarse French serge, thoroughly fulled.

Corded seam: A corded seam is similar to the piped seambut since the piping tube is stuffed with a cord; it stands out from the seamline. It is often used to edge necklines, short sleeves, and waistlines, and is especially popular when sewing home furnishing.

Corded cloth: Fabrics having ribs running lengthwise (produced by the warp) crosswise (produced by the weft) or diagonally (produced by a twill weave).

Corded dimity: Engish dimity, made of goat's hair.

Corded selvage: See **Loopy selvedge.**

Corded velvet: Corduroy

Cordelat: (1) Stout twilled woollen cloth, made around Aure, France. (2) Coarse, long napped woollen dress goods from Languedoc, France. (3) Light loosely woven woollen, finished like a flannel, from Beauvais, France.

Cordelia Lace: Lace, having patterns outlined with a heavy thread over a net foundation.

Corderette: 18th century woollen fabric in England.

Cordettes: French cloth made of hemp for headdress.

Cordetum: A coarse fabric; used in medieval England.

Cordington: A heavy boucle.

Cordoncillos: Coarse, plain woven, bleached or unbleached cotton fabric; used for garments by the poorer classes in Mexico.

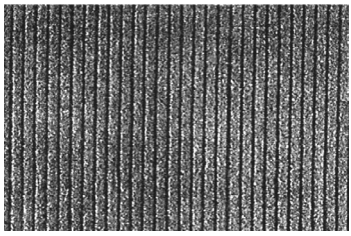
Cordonnets (silk): Coarse double twists consists of several greige threads with a preliminary twist of 400-800 twists per metre and subsequent doubling od two or three threads followed by 30-600 twists per metre. Cordonnet yarns are mostly used for sewing threads but sometimes as knitting yarn as well.

Cordonnet en Laine: Cord, made of wool or camel's hair; used for upholstery, etc.

Cordovan: A heavy leather that may sometimes be available for sewing. It is from horsehide and is most common leather used for coats, jackets, boots, shoes etc.

Cordurette: Plain woven woollen fabric, made with weft ribs.

Corduroy: Courduroy, a filling pile fabric, has a ribbed velvet face with cut weft pile. It is warp-way rib structureproduced by weaves with weft floats, can also be modified to pique' form.A strong cotton yarn fabric characterized by pile ribs running along the length. The ground fabric usually plain weave



or twill, and the final finishing lays the pile at a slight sland, in one direction. Today often courduroy is referred to as Cord. A typical construction is 60 × 200 with 2.30s warp and 16s weft. These construction and weave wary and also the width. The piles or cords are technically called wales and when the wales are narrow, it is called pin wale corduroy. Approximate weight per square metre is aroung 6–8oz. All corduroy is very hard wearing, washable, and comfortable to wear. It is used as work clothes, leisure clothes and childrens clothes etc.

Core: A filament or strand that serves as an extended axis about which other elements has to be wound.

Core, in sampling fibre packages: The portion of wool or other fibre obtained by using a sampling tube.

Core sampling: The taking of cores from packages of textile fibres for sampling purposes.

Core spinning The process of making a corespun yarn. It consists of feeding the core yarn (an elastomeric filament yarn, a regular filament yarn, a textured yarn, or a previously spun yarn) into the front delivery roll of the spinning frame and of covering the core yarn with a sheath of fibres during the spinning operation.

Core-spun yarn: A compound structure in which a filament or strand serves as an axis around which a cover of either loose fibre or a yarn is wound. A yarn produced at the spinning frame by feeding a yarn through the delivery rollers only, simultaneously with the spinning of the staple fibres (q.v.). Note:

The yarn fed through at the delivery rollers only is usually known as the "core", and the other component is known as the "wrapper". The core may be of continuous-filament yarn or of spun yarn. If the core is of spun yarn, the direction of its twist is usually the same as that of the complete yarn. Core-spun yarns are made for decorative purposes or, more commonly, for strengthening the wrapper for facilitating subsequent processes. When used for strengthening, the core may, after it has served its purpose, be removed by solvent or other chemical action, e.g. the removal of calcium alginate filament yarn by an alkaline scour or of a cotton yarn by carbonising. The core is often retained for strengthening the resultant fabric as is the case if nylon or polyester continuous-filament yarns are used.

Core or Core Spun Thread, in sewing thread: A thread construction made by wrapping a cotton or polyester staple wrapper around a continuous filament core of polyester. Two or more of the core yarns are then plied to make a core spun sewing thread.

Core Yarn: The internal member of a core spun, covered or fancy yarn readily seprate from the covering fibres or yarn. See **Covered yarn.**

Core-bulked yarn: See **Textured yarn**.

Core, in sampling: The portion of wool or other fibre obtained from a package by use of sampling tube.

Core-spun yarn: A yarn made by twisting fibres around a filament or a previously spun yarn, thus concealing the core. Core yarns are used in sewing thread, blankets, and socks and also to obtain novelty effects in fabrics. The lycra corespun yarn is extensively used in woven lycra fabrics.

Cored braid, in rope: A hollow braid construction, either plain or twill, the centre of which is filled with yarns which are not braided.

Corkscrew: (1) A weave composed of the regular twills of 40 degrees, the minimum number of harnesses being five and the maximum 13; (2) A warp faced fabric, woven in fancied re-semblance to a corkscrew; the best grades have French yarn worsted warp, while the filling can be of cotton or wool; used for men's wear and shoe tops; (3) Flaw in doubled yarns, consisting of one yarn being loosely coiled around the other.

Cork screw yarn: Warp-fabric produced in a steep twill weave.

Corkscrew, in raw silk: A place in the yarn in which one or more cocoon filaments are longer than the reminder and give the appearance of a spiral form.

Corkscrew twist: A fabric defect consisting of a crimped, rippled, wavy, pebbled, or cockled area in the fabric spoiling the uniformity of the texture.

Cork screw, Wool: Very fine worsted with a close nap, woven in corkscrew. The nap prevents tiny spots developing. Dyed in piece form. For evening shirts, professional cloth for miscicians, waiters etc.

Corn-coloured: Resembling the colour of corn.

Corn oil: Corn oil has a high unsaturated acid content (46% oleic and 42% linoleic acids). It is used extensively for cooking, as salad oil and for making oleomargarine. Because of the high amount of poly-unsaturated, its use leads to lower cholesterol levels in humans.

Cornelian red: The red colour reflected by the stone, cornelian or cornaline. See **Carnelian**.

Cornflower Blue: The darkish blue of the cornflower – one of the 140 colours in **the X11 Colour Set**. It has hex code #6495ED.

Cornsilk: A beige colour – one of the colours in the **X11 Colour Set**. It has hex code #FFF8DC.

Corojo: Long and strong leaf fibre, yielded by the corojo palm in Central and South America; used for ropes.

Coronation cloth: Fulled mixture suiting in black, blue and red colours, brought out at the coronation of Edward VII. and George II.

Corporate identity: Corporate image.

Corpse grey: A macabre colour description requiring no further explanation.

Corrugation mark: A fabric defect consisting of a crimped, rippled, wavy, pebbled, or cockled area in the fabric spoiling the uniformity of the texture.

Corset Jean: Very strong, stout jean, made of pure cotton or linen, in twill or broken twill weave, in white, and for corsets, etc.

Corset lace: A narrow cotton braid; used to lace corsets with.

Corsicaine: French silk dress goods, made with printed warp. It has small squares placed on the bias over black or coloured ground.

Cortega: A white, tough bast fibre in Panama; used for cordage.

Cortex: (Lat. = cover, bark, shell) In mammalian hair fibres : the principal body of the fibre made up of elongated cells**.**, (i) In wool structure, the cortical or spindle cell layer. (ii) In silk structure, the cortical layer in the fibroin filament and the fibroid interior of the sericin layer.

Corteza del Damajuhato: ‘A fibrous bast, yielded by the Couratari tree in Brazil; used for clothing.

Cortical Cells: The spindle shaped cells forming the inside structure of a fibre.

Corvine: Having the characteristics of a crow – in particular, a glossy black colouring.

Co-spun yarn: Produced by the simultaneous spinning of two different types of polymer to give an enclosed mixed fibre.

Cosmos: Fibres recovered from flax or jute rags by tearing them up.

Co-spun yarn: Produced by the simultaneous spinning of two different types of polymer to give an enclosed mixed fibre.

Cost price: That price that essentially will cover any costs involved and ensure that no loss is made.

Cot: The covering material used on various fibre-processing rolls, especially drawing rolls. Leather, cork, rubber, and synthetic materials are frequently employed.

Cote de Cheval: Cotton, wool or silk fabric, made with warp ribs, similar to the Bedford cord.

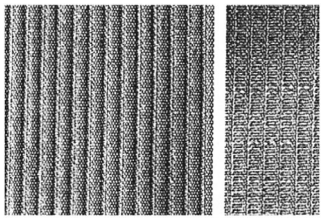
Cote Menue: French serge dress goods, made with 10 leaves and five picks in a repeat.

Cote Piquee: Solid coloured French serge having eight leaves and eight picks in a repeat.

Cote Syrienne: Solid coloured French serge, having eight leaves and eight picks in a repeat.

Cotelaine: Bleached, corded muslin in French.

Côtelé: (Fr.: côte = rib). Worsted and cotton fabric with fine compact warp ribbed or striped textured appearance, sometimes in patterns or checks etc., commonly called bengaline (England and U.S.). French term for corduroy, although in German trade terminology generally used for finely constructed fabrics having cord-like warp-way ribs. End-uses: ladies wear, suits



Coteline: Warp ribbed dress goods, the heavy cotton ribs alternating with four or six fine warp threads. The filling is often in two colours; used for summer dresses. It is often printed in colours on white foundation; also made in silk.

Coti: Americano Bed ticking in Chile, usually stiffened.

Cotillion: Black and white striped woollen dress fabric.

Coton: Azul /Stiffened denim, made with blue warp and white filling in Chile.

Cottage basin: It is a device used for reeling silk, designed (Indian) on the principle of Japanese multi end reeing machine. It is superior to charkha reeling device. It normally consists of 6 ends.

Cottage industry: Domestic system of manufacture where textiles were spun, knitted or woven in the home.

Cotte: Long women's dress or men's long tunic used by Romans during gothic period.

Cotted: A fleece that contains fibrer those are matted (or "felted") together.

Cotton: The seed hair of plants in the Gossypium botanical genus of the mallow family. After flowering the ovary located in the calyx develops into an elongated capsule which bursts open to allow its seed hairs to billow out. A cotton capsule contains about thirty seeds and each seed is host to 2000 to 7000 seed hairs. The most important quality attribute is the staple length. This is generally between 18 and 42 mm. The separate grades are divided into the following four classes according to their maximum staple length: short staple < 26 mm, medium staple 26–29 mm, long staple 30–38 mm, extra-long staple > 39 mm.

Cotton Back: Silk fabrics, mostly satins, made with cotton back.

Cotton Bagging: Very coarse and heavy jute bagging; used for baling cotton.

Cotton Blanket Cloth: Very soft, napped, all-cotton cloth, made with two sets of warp and one filling, the face and the back of the cloth being reverse of each other; used for bathrobes, blankets, etc.

Cotton broadcloth: A lightly woven cotton, usually mercerized. Handles like medium weight cotton or linren fabrics.

Cotton Checks: In England blue and white checked or striped, all-cotton cloth.

Cotton colour diagram: A digram showing the colour ranges of standards officially established by the US Deoartment of agriculture for the various grades of cotton in relation to the scales of reflectance on the vertical axis and yellowness on the horizontal axis.

Cotton cord web appearance: The visual effect obtained by viewing a sample of web produced by a card operating at normal production speed placed on a black board of designated size.

Cotton count: The yarn numbering system based on length and weight originally used for cotton yarns and now employed for most staple yarns spun on the cotton, or short-staple, system. It is based on a unit length of 840 yards, and the count of the yarn is equal to the number of 840- yard skeins required to weigh 1 pound. Under this system, the higher the number, the finer the yarn. (Also see **Yarn number**.)

Cotton crepe': Cotton crepe is often made in the plain weave with ightly twisted single S twist yarn in the wrp and weft. The cloth is woven in much higher width than the normal finished width, and allowed to shrink while processing, therby the yarns tend to pucker which gives the characteristic effect. Warp crepe is woven using a warp in which 2 ens od S twist alternate with 2 ends of Z twist.

Cotton damask: Jacquard-patterned cotton fabric with satin ground, for bed linen and table linen. The clarity of the figurative designs is achieved by the technique of warp and weft satin weave. The silky lustre is intensified by a special finish.

Cotton Ferrets: Cheap bindings or unsized tapes in gray or black.

Cotton fibre: A unicellular, natural fibre composed of almost pure cellulose. As taken from plants, the fibre is found in lengths of 3/8 to 2 inches. For marketing, the fibres are graded and classed for length, strength, and colour.

Cotton flouncing: Plain weave, fine cotton fabrics, embroidered with cotton or viscose yarns with scalloped or flounced edge down one side. Creases easily.

Cotton jersey: Knitted cotton, plain or printed. It is cool and light weight very absorbant and comfortable. Used for sports and casual wear, summer dresses and blouses , chldrens clothes.

Cotton maturity: The degree of fibre wall development.

Cotton mousseline: See **Butter muslin, Mousseline.**

Cotton ratine: A loosely woven plain weave fabric with a rough surface produced by twisting heavy and fine cotton yarns at various tewnsions. Usually dyed and polished for use as a furnishing material, though it is loosely woven for use as chair covers.

Cotton regatta: A plain weave cotton similar in appearance of deniom, but softer and with a closer weave. Produced in deniom colours, blue, grey, pink etc. but definitely a dress weight fabric. Uses for crisp topstitched dresses, unlined jackets, shorts.

Cotton satin: Cotton woven in satin weave to produce a soft fabric with a sheen on the right side. Produced in various weights and usually printed. A dress fabric, but also very popular as curtain fabric also.

Cotton shantung: A plain weave cotton fabric made from irregular cotton yarns. The nubs or slubs are soft and are weak ares. Used mainly for curtains and bedspreads.

Cotton stand: A process originally used for manufacturing cotton fibre into yarn, and now also used extensively for producing spun yarns of manufactured fibres, including blends. Processing on the cotton system includes the general operations of opening, picking, carding, drawing, roving, and ring or mule spinning in the production of carded yarns. For combed yarns, three steps, culminating in combing, are included after the carding operation. There have been many modifications of this process, especially in recent years for the so-called "long draft," or "Casablancas," system. The cotton system is also proving to be the basis of many hybrid systems for handling wool yarns and for manufacturing other long-staple yarns.

Cotton system: A spinning system adapted to fibres less than 2.5" (65mm) in length.

Cotton velvet: A short pile cotton fabric, with additional warp interlacing between two basic fabrics. The pile is afterwards cut and the fabric is separated. Not as luxurious as the other velvet but hard wearing. Suitable for trousers for example.

Cotton viscose: Soft warm light weight fabrics. May be knitted or woven. May also be slightly brushed on one side. A wide variety of plain and printed fabrics. Used for tops, tee shirts, casual dresses, cardigan style jackets etc.

Cotton waste: Material removed from seed cotton, ginned lint, or stock in process by any cleaning or processing machinery and usually consisting of undesirable fibres or a mixture of cotton fibres with foreign matter.

Cotton wax: Constituent of raw cotton (Raw cotton composition) at 0.4–0.8%. Melting point 70–75°C, saponification number 65. In particular free Fatty acids of higher molecular weight ([carnuba wax alcohol-] fatty acid ester), 50–55% free, unsaponifiable high molecular alcohol and hydrocarbons.

Cotton wool: Usually built up in layers (of nonwoven fleece) and condensed, made of fibrous material open to a single fibre, whereby the fibres are held together only by their natural adhesion. Application: upholstery padding; industrial padding, glued wadding (glued on one side) for wardrobe inserts; medical padding for bandage and surgical dressings.

Cotton worsted: Smooth finished twilled cloth, made of hard twist ‘cotton yarn woven and finished to imitate worsted cloth; used for cheap clothing, overcoats.

Cotton, acetylated: Acetylated cotton.

Cotton, aminoethylated: Aminoethylated cotton.

Cotton, ran: Ginned lint that has not been subjected to any textile manufacturing process.

Cottonade: Cottonade Originally plain, also serge or twill woven all-cotton fabrics made with single yarns and heavy filling, made in solid colours, checks, stripes, plaids, etc., always dyed in the yarn; used for dress goods, table cloths, etc., and the stronger grades for trousers. Stout cotton cloth in imitation of woollen or worsted; used for men’s trousers.

Cottonette: (1) Knitted cotton fabric, cut and made up into bathing suits. (2) Cotton fabric, containing one-third wool.

Cottonee: Cotton back silk satin, made in Turkey.

Cottonised flax: By cottonizing of Bast fibres with a cotton-like short staple is produced with high strength and linen- to silk-like handle. Due to their smoothness, they are usually used in combination with other fibres (cotton, spun viscose, wool etc.), in the cotton spinning system. They are especially suited to fab rics that are very hardwearing and wash-resistant

Cottonizing: “To make similar to cotton”, i.e. cottonizing Bast fibres. Term for chemical retting by alkali scouring for example or acidic chlorine bleaching, the result being the exposure of individual fibre cells cemented and bundled by vegetable glue, which are spun by the 2 or 3-cylinder spinning process into yarns like cotton (Cottonized flax).

Cottonseed oil: Cottonseed oil contains 27% oleic, 50% linoleic and 21% palmitic acid. It too is used for food purposes like corn oil.

Cotty Wool: Wool that has matted or felted on the sheep’s back. Caused by insufficient wool grease being produced by the sheep, usually due to breeding, injury, or sickness. This type of defective wool is more common in the medium to coarse wools. The fibres cannot be separated without excessive breakage in manufacturing

Couching: (1) In embroidery heavy threads are laid on the foundation and fastened to it by another finer thread. It is used especially in church embroidery. It is flat or raised; (2) A very thick, two-strand thread made of mercerized cotton, wool or silk; used for embroidery and fancy work.

Couleur de rose: Rose coloured.

Count, cotton: See **cotton count.**

Count, metric: See **Metric count.**

Count: (1) A numerical designation of yarn size indicating the relationship of length to weight. (Also see **yarn number**). (2) The number of warp yarns (ends) and filling yarns (picks) perinch in a woven fabric, or the number of wales and courses per inch in a knit fabric. For example,a fabric count of 68 × 52 indicates 68 ends per inch in the warp and 52 picks per inch in the filling.

Count - in knitted textiles: The no. of wale loops and course loops per 25 mm (per one inch).

Count - in woven textiles: The no. of earp yarns and weft yarns per inch counted when the cloth is in Zero tension and is free from creases.

Count, Fabric: The number (counted Units) of warp yarns and weft yarns per inch.

Count of reed, reed number: (1) The number of dents per unit width of reed. number of dents per ionch; (2) Number of dents per two inches; (3) Number of groups of 20 dents per 36 inches (4) The number of dents per 10cm. The recommended unit is no. of dents/cm.

Count, worsted: See **worsted count.**

Count, yarn: See **Yarn count.**

Count-strength product: See **skein break factor.**

Counter current, in drying: The drying medium (hot air, steam, hot gases etc.) flows against the direction of the fabric movement (Uniflow principle in drying; Circulating air drier).

Counter current, Washing/scouring Process: The scouring liquor flows against the direction of the fabric movement (See **Counter current washing process**).

Counter current principle: Diffusion-controlled processes such as scouring are affected both by temperature and an existing concentration gradient. In an open width wash range, it is preferable to bring the clean, fresh detergent solution into contact with the goods being processed at end of their dwell in the range so that the cleanest process liquor meets the cleanest goods in process. By using a counterflow system, the goods first entering the range with the highest level of soiling meet the process liquor with the highest rate of soiling and this soiling is then carried out of the system by the liquor flow.

Counter flow/current Washing process: Continuous Flow washing plant with counter-current water supply (bath current) and fabric transport: water supply in the last spray zone and drain-off in the prewash section. Counter

current washing processes allow savings in water usage and optimisation of detergent and heating energy.

Counterpile rollers: The actual raising rollers in the Raising elements of raising machines.

Counting glass: A small mounted magnifying glass for examining fabric. The base of the mount generally incorporates a unit of measurement or as one cm. square, one inch square or cross shaped aperture of carious dimensions, convenient for counting ends and picks or courses and wales in a fabric.

Couple: To combine two or more components, usually a phenol or aryl amine with a diazonium salt to form an azo compound.

Couple, coupling: Operation in dyeing: the bottomed naphthol colour is coupled to the dyestuff with diazotized azoic base or the dyeing salt. Coupling in power transmission: A connection between two coaxial shafts to form one length of shafting and to transmit torque, e.g. from one shaft to another, to gear wheels, pulleys etc. Often also used to transmit power to a machine tool from a motor.

Coupling of dyeing machines: Dyeing machines are coupled in order to extend the capacity of existing dyeing machines, e.g. for large batches. This can be done by parallel coupling or cross-coupling. Existing valves can of course be regulated in such a way that each machine can also operate individually (i.e. uncoupled).

Couratari: In South America a fibrous bast of the same tree; used for blankets, clothing, clothes, etc.

Courimari: In Venezuela the fibrous bast of the Couratari tree; used for blankets, clothes, etc**.**

Course, in knitted fabrics: The series of successive loops lying crosswise of the knitted fabric, that is, lying at right angle to a line passing through the open throat to the close end of the loop.

Course: A seies of successive loops lying cross-wise in a knitted fabric, that is, lying at right angles to a line passing through the open throat to the close end of the loops.

Course count: the number of courses in a knit fabric per unit length measure.

For example: courses per inch.

Course counter: An instrument or unit (e.g. Tube-tex stitchcounter) to count the courses in a knitted fabric. In many shrinkage machines by counting number of courses per unit length can give indication of the shrinkage dine in the compactor/ or even the GSM. It is possible to optically photocopying the

'highlights' (more illuminated dots in a unit length) and count them because the loops of the courses are aligned three dimensionally by the hooks in the production of knitted fabrics.

Course density: Number of courses per centimetre of fabric length (course density): this is the number of horizontal rows composed of stitches per unit length of fabric in the lengthwise direction (generally, one cm fabric length is taken).

Course length: (weft knitted) the length of yarn in a weft knitted course.

Course length: The amount of yam used in forming all the knitdoops in one course of a knitted fabric. Also called run-in.

Course, in knitted textiles: A row of loops across the width of the fabric.

Course, weft knitted: A row of loop across the width of the fabric.

Courte Pointe: Bed quilts, made in 'France of pique or calico and stuffed with cotton batting.

Courtelle: Courtalds' trade name for their acrylic fibre. Used alone for clothes, carpets, and blankets. It blends well with other fibres and mixtures are used for all type of clothings and furnishing fabrics. Crease resistant, strong, washable, unaffected by moth and mildew.

Courtrai: French bobbin lace similar to the Val, the threads of the mesh ground 'being twisted three and a half times.

Coutance: Strong, French ticking made of plain hemp.

Coutil, Coutille: A strong cotton fabric made in herringbone weave or reverse twist twill weaves. It is a close textured cloth, sometimes patterned and used for corsetry, and sometimes used as a strong lining fabric or tropical suiting Bleached or dyed, woven in 2/1 warp faced twill usually in herringbone stripes which is used for corsets. A typical cotton construction is 28s × 20s; 117 × 68; 5 1/2 oz./yd^2.

Coutils de Brin: Coarse French ticking.

Coutil Facon de Bruxelles: French coutil, made with narrow stripes.

Covalent bond: a chemical bond where a pair of electrons is shared relatively equally between two atoms in the compound Covalent bonds are formed between the fibres and reactive dyes. These are the strongest type of chemical bond, and are responsible for the excellent washfastness of reactive dyes.

Coventry blue: A blue dye providing good fastness of colour; thus used to describe a person who shows great loyalty. Takes its name from a blue thread once made in Coventry. See **true blue**.

Cover: (1) The degree of evenness of thread spacing.

(2) The degree to which underlying structure is concealed by the surface material, as in carpets, the degree to which pile covers backing.

(3) The row of loops or stitches running across a knit fabric, corresponding to the filling in woven fabrics.

Cover: The outside layer of fibre which forms the surface of the yarn.

Cover, in woven fabric: The cover defines as the area of 1 cm2 of the fabric which is actually covered by the warp and weft yarns. It is useful and practical indication of the fabric's permeability to light, gasses, liquids and solid particles.

Cover, in yarns: The outside layer of fibres that form the surface of a yarn.

Coverall: A one piece type of lagged work wear often capable of being fastened at wrists and ankles.

Cover factor, in knitting: (CF), Knitting. A term used for the comparative assessment of knitted fabric density. The cover factor CF is calculated from the number of knitted courses c, the number of knitted wales w, and the yarn count Nm. $CF = (c+w)/(Nm)^{1/2}$.

Cover factor, in weaving: The fraction of the surface area that is covered by yarns assuming round yarn shape. It indicates the extent to which the area of a woven fabric is covered by either the warp or weft (filling) threads. It is the ratio of fabric surface occupied by yarns to the total fabric surface. Thus for any woven fabric two cover factors are involved, i.e. the warp cover factor and the weft (filling) cover factor.

Cover factor (Knitted fabrics): Tightness factor (cover factor) indicates the looseness of a knitted fabric, i.e., increase in tightness factor results in tighter fabrics. It is defined as the ratio of the area covered by the yarn in one loop to the area occupied by that loop. Tightness factor ranges between 10 and 20 for most weft knitted structures, the most suitable for plain knitted fabrics is around 14–15.

Cover Roller: See **Blotch printing machine**.

Cover stock: A permeable fabric used hygiene products to cover and containan absorbent medium.

Coverd yarns: A compound structure consisting of a readily sepserable core surrounded by a cover framede by one or more spun or filament yarn.

Coverspun spinning: Covers pun is both the name of a spinning system and a yarn. In this system staple rovings are drafted in a conventional manner, and then the roving is passed into a hollow vertical spindle. On the outside

of the spindle a filament yarn, from a cylindrical spool rotating at 20,000 to 30,000 rpm, is fed into the top of the hollow vertical spindle with the roving. The rotating filament spindle causes the filament to wrap around the core of the staple to produce a wrapped yarn consisting of 80% to 95% staple. Polyester filaments are usually used to wrap pure yarns or blends of cotton, wool, nylon, and acrylic staple to form sewing threads or yarns for textile substrate production.

Covering stitches: A type of chain stitch produced on a twin or multi needle machines used for covering seams.

Coverstock: A lightweight nonwoven material used to contain and conceal an underlying core material. Examples are the facing materials that cover the absorbent cores of diapers, sanitary napkins, and adult incontinence products.

Covert: A twill-woven woollen cloth, sometimes with fulled face, sometimes sheared to imitate whipcord a short top coat.

Covert, cotton: A sturdy fabric, resembling denim woven in 2/1 twill. A characteristic construction is 66 × 46 with 12s mock twist warp and 12s solid coloured weft. The weft yarn is dyed, usually the same shade as the darker colour of the mock twist in the warp. Made with two shades of colour e.g. (Medium and light brown). The warp is 2 ply (1 light; 1 dark) adn filling 1 ply (dark or same as warp). Very rugged and closely woven. Has a mottled or speckled effect. First used as a hunting fabric. Has a clear finish and hard texture. Wears exceptionally well and has a smart appearance. Light in weight. Uses: For overcoating for both men and women. It is also made waterproof and used a great deal in rain water.

Covert, wool: Made with stock dyed yarns in D & T (double and twist) or mock twists for the warp, such as dark brown and light brown which produces a mottled beige effect.. The darker shade of the two is used for the solid coloured weft. A typical construction is 44 × 36 using 3 run woollen warp and weft. The weight is about 16-18 oz. per yard. The cloth is lightly napped. Covert cloth is also made in cotton, viscose and acetate with the characteristic speckled effect. Tjis is lighter in weight than the overcoating and is used for suits suits and rain coats

Covert, worsted: It is made as in the case of woollen covert, with 80 × 50, using 2/30s worsted warp and 16s worsted weft. The weave may be a reinforced satin weave or 3/2, 63 degree twill weave with a fabric weight of 12–14 oz. per yard in 60 in. width.

Cowslip: A light yellow.

Cow tail: In worsted sorting means coarse staple taken from the tail end of the low lustre fleece; spins 26s to 28s.

Cowhide: Occasionally used for ready-made clothes, but not usually available for sewing.

Cowoven fabric: A hand device used to stretch carpets in a small area.

Cox royal arch: Commercial variety of early maturing cotton from Georgia, the staple measuring 25–28 millimeters; the yield is 30–32 percent.

Coxcomb: A bluish-red.

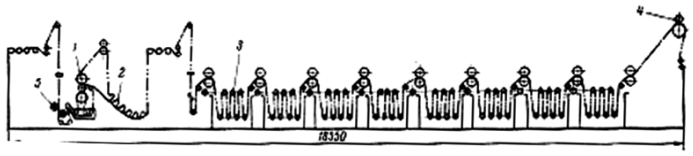
CPB: abbrev. for: **Cold pad batch process.**

CRA: Crease recovery angles.

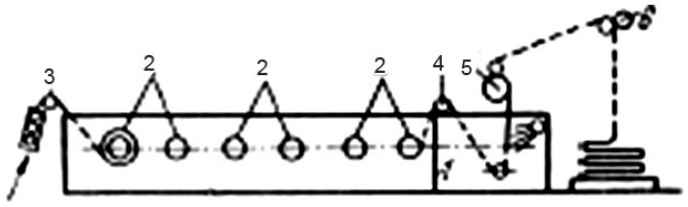
Crab: A hand device used to stretch carpets in a small area.

Crabbing: The process of heating wool or hair fabrics, under tension, in a hot or boiling liquid, then cooling under tension, to provide the fabric with dimensional stability. The process is done for undyed woven fabrics (e.g. ladies and menswear fabrics in worsted, Cheviot and mohair) (a) for setting the cloth to restrict excessive creasing and felting in subsequent dyeing, and (b) for removing oils and additives.

Crabbing machine: Machine used for Crabbing operation/process. Even though batch wise and continuous machines are used, present day most of the processors use continuous crabbing machines.



Semi-continuous crabbing



Continuous carbbing

Crack: A defect in a woven fabric consisting of an open fillingwise streak extending partly or entirely across the fabric.

Crack mark: A sharp break or crease in the surface of a coated or laminated fabric.

Crack mark, in bonded/laminated fabrics: A sharp break or crease in the surface contour of either the face fabric or the backing fabric that becomes evident when the bondedor laminated composite is rolled, bent, draped or folded.

Craft dyeing: It is the artistic use of dyes and processes of application to produce special objects of beauty and artistic value. He (or she) endeavors to produce colours and colour combinations on a fabric more with reference to the particular use of the material being dyed, and at- the same time trying to put into the work some form of artistic expression, using the colour as a component of design.

Crafts man: An artisan who is skilled in creating new cultural objects.

Cramming: Where more threads are packed into some areas of the fabric than others.

Cramoisy: Crimson.

Cranberry red: The dark red of the cranberry.

Crane-feather: Having the grey colour of a crane's feathers.

Cranston: A highland tartan, composed of dark blue and light blue stripes and red and blue lines.

Crapaud: French for mispick.

Crapaudaille: Fine silk crepon in France.

Crape: (1) In the 18th century a woollen fabric in England, made either crimped for deep mourning or smooth; (2) The extremely fine knitting on some of the 'Shetland shawls. (3) see **Crepe**.

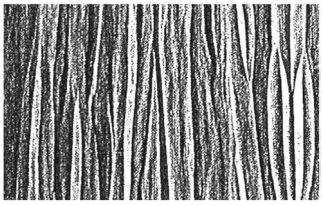
Craping: Process of rendering a fabric crimpy or crapy. The most important processes are: (a) The filling is composed of right hand twist and left hand twist yarns, interchanged at every two or four picks; (b) Certain warp threads are wound on a separate beam and held much slacker than the rest of the ends, forming stripes of crepe; (c) Cotton is treated with caustic soda, wool or silk with concentrated sulphuric acid for a short time at certain places, producing crepe el feet; (d) Warp and filling made of different fibres with different shrinkage; (e) Combinations of these processes; (f) Produced by causing the fabric to adhere at certain parts to stretched rubber bands which, when released, will cause the crinkle. (g) Produced by using yarns of various degree of twist.

Craquele': (Cloqué). Fabric with relief texture woven with synthetic fibres. Generally produced bymixing high-shrinkage and low-shrinkage synthetic yarns woven in fancy design, the effect being obtained by appropriate

finishing. At high temperature (in hot aqueous solution or steam atmosphere) the highshrinkage yarn contracts and acting in association with the low-shrinkage yarn produces the relief effect. Similar effects can also be obtained by topical application of fibre-swelling or fibre-contracting agents (alkalis, phenols, cresols etc.).

Crash: (1) Fabric (usually Linen) in plain weave or twill, or variations on twill, with a rough texture due to thick uneven yarns used in the weft. Traditionally, it is creamy beige. Browm mercerized cotton, or occasionally wool, may be used for the warp in place of linen. Mainly used for towels curtains and embroidery.

(2) Originally unbleached, rough, coarse palin weave linen fabric made with irregular yarns. Nowadays made by intentionally creasing and fixing the creases in finishing. Now this name is used for any coarse fabric with a rough, irregular surface made from thick, uneven yarns.



(3) (a) Plain or twilled gray, bleached or checked cotton and jute cloth, sized and calendered to resemble linen; used for towels, suits, etc.; (b) Light, plain woven, coarse linen fabric, made of uneven, slack twist yarn; used for summer suits, towels. (c) Coarse plain woven light woollen fabric made of rough hard spun yarn. Dyed in the piece or made in mixture effect.

(4) A special fabric used for curtain. Totally synthetic material, produced by crushing, stamping, thermal or chemical treatment for a creased-look. Crash-fabrics have only limited dimension stability, hanging-out is possible.

(5) Lengthways creases Introduced in by finishing.

Crash towel: A plain weave nonterry product with hems or selvedges which has rough texture caused by uneven yarns.

Cravenette: Cloths treated and finished before weaving by an improved process which renders them rainproof. A secret process owned by the Cravenette Company and by Priestly & Company of England and the United States.

Crawford: (1) A commercial variety of early ripening cotton from South Carolina, the staple measuring 23-27 millimeters; the yield is 32-33 per cent;

(2) A highland tartan, composed of green stripes over a crimson red ground and narrow white lines.

Crazy Quilt: Made by joining irregular pieces of cloth together with various fancy stitches, without arranging the pieces into any pattern.

CRE: abbreviation for Constant-Rate_of-Extension.

Crea: A more or less stiffened bleached cotton cloth in Chile.

Crea para sabanas: Bleached cotton sheeting in South America.

Cream Damask: Linen damask made of partly bleached yarn.

Cream of tartar: See **Potassium bitartrate**.

Creamed linen: Linen yarn partly bleached.

Creas Stout: Bleached linen canvas made of hard spun yarn; the pieces made 30 metres long in Germany and Austria.

Crease: A break or line in a fabric generally caused by a sharp fold. Creases may be either desirable or undesirable, depending upon the situation. A crease may be intentionally pressed into a fabric by application of pressure and heat and sometimes moisture.

Crease mark: A visible deformation left in the fabric after a crease has been incompletely removed during fabric processing or ironing.

Crease, pressed in: A crease intentionally inserted on a fabric usually by application of pressure, heat and moisture.

Crease recovery: See **Wrinkle recovery.**

Crease recovery angle: (uncreasing angle). Dimension for determining the effect of non-crease finishing (Crease resistance). It is a measure of the recovery power of a fabric. It is the angle which results after a specific time when a straight yarn test specimen, folded through 180°C, is released after prior loading.

Crease resist finish: See **Anti-crease finish.**

Crease resistant: A fabric which is resistant to crease formation during wearing or washing or any proess of crease formation. The level of crease resistance is assessed by crease recovery or DP ratings or any other methods.

Crease resistant finishing: See **Anti-crease finish.**

Crease resistance: (fastness to creasing). Resistance of textiles to creasing in terms of wet and dry crease resistance. Not only measurement of the wet and dry crease recovery angle, but also the actual wash and wear behaviour of a woven fabric is used for qualitative assessment. Temperature, air humidity, period of loading and recovery time has a great effect.

Crease retension: The ability of a fabric to maintain an inserted crease made during the garment making like pleats in womens skirts and the folds in the garments. Opposite of crease resistance. Usually the garments are treated with the resin precondensates and then cured during the required creases are set in. Crease retention can be measured subjectively or by the relation of a crease in a subsequent state to the crease in the initial state. Crease retention may be strongly dependent on the conditions of use, e.g., normal wear, washing or tumble-drying.

Crease, pressed in: See **Crease retention.** The creases are pressed in during the curing process of the resin precondensates to retain the same in the garments.

Crease-resistant: A term used to describe a fabric treated chemically to improve its resistance to and recovery from wrinkling.

Creasing: Sensitivity of individual fibres to continuous flexure, creasing, pressing, squeezing across the fibre direction, in woven fabrics transversely to warp and weft ends.

Creasing angle: See **Creasing; Crease recovery angle.**

Creasing Inhibitors: Textile auxiliaries for the prevention of Running creaser, especially when dyeing in rope form.

CRECIT: Centre de Recherches d'Essai et de Contrôles Scientifiques et Techniques pour l'Industrie Textile (Scientific Technical Research Centre of the Belgian Textile Industry), Tournai, Belgium.

Creeks: General trade name for various cottons of light body, measuring from

11-6 to 1% inches in length.

Creel: (1) A framework arranged to hold slivers, rovings, or yarns so that many ends can be withdrawn smoothly and evenly without tangling.

(2) A similar device used to aggregate sub-tows to tow in the manufactured staple processing, especially polyester.

Creel, magazine: This kind of creel is used when several warps of similar type must be prepared in sequence that is when large lots of similar yarns need to be processed. Level with each tensioner, two bobbins are positioned: one operating and the other as reserve.

Creel, mobile: this creel type is similar to the standard creel, but is formed by trolleys which can be taken individually out of the creel. The bobbins are creeled up on each trolley outside the creel. During the creeling up of a series

of trolleys, the second series of trolleys is brought back to the outside of the creel to feed the warper. This reduces considerably the waiting time. The mobile creel comes in handy especially when there is insufficient room to permit the use of two standard creels.

Creel, Swivel frame: this type of creel was designed as a variation of the mobile creel to enable the creeling up of bobbins which, owing to their heavy weight (5 to 25 kg), cannot be pinned on trolleys. Each bobbin holder is double-sided: the threads are unwound from one side, while a new series of bobbins is creeled up on the other side.

Creel, V-shaped: In this creel type, the creel boards are assembled in form of endless chains. While warping is carried out from the outer sides using the already creeled up bobbins, the subsequent yarn lot can be creeled up on the empty spindles positioned inside the creel. This interior room serves at the same time as storage and bobbin exchange station. The yarn lot can be changed by simply pushing a button, which starts the electrically drive of the chains.

The empty bobbins move towards the inside of the creel, the full bobbins towards the outside.

Creeling: The mounting of supply packages in a creel to feed fibre to a process, i.e., beaming or warping.

Creep: See **Delayed deformation and Permanent deformation**.

Creepage: A relaxation shrinkage that occurs under normal conditions of storage.

Crefeld Velvet: Light German velvet made of silk and cotton; used for dresses, millinery, etc.

Crehuela: Light osnaburg in Venezuela.

Creme de violette: A deep violet.

Cremosin: Cremosin, cremesin, cremoysin, cremsin, cremysyn, cremysy, cremasie and qerinasi are all obsolete forms of **crimson** and **carmine**.

Crenele: The edge of the dress or material, made like a battlement.

Creoulo: Raw cotton, grown on trees in Brazil.

Crepe: (1) It refers to any type or weight of fabric characterized by a crinkling surface obtained by the use of (a) hard twist filling yarns (b) chemical treatment (c) crepe weaves or (d) embossing. Crepe fabric can be made with any fibre, natural or synthetic, or from mixtures or blends. (2) (Lat: crispus = puckered).

Textile fabrics with a typically wavy, grained or puckered surface (patterned). There are a variety of crepe fabrics. They are all light weight fabric with irregular surface. The crepe effect can be nade with weave, special finish or by combination of these. Blanced crepe is made with alternate 2 S twist with 2 Z twist or 4 S twist with 4 Z twist in the warp and weft. Flat crepe can be made with a typical construction of 130 × 75 with 100 denier dull rayon in the warp and 100 denier bright rayon in the filling. It is called flat crepe because in this the fabric, the yarns are not given any special twist. It is usually woven in the plain weave, with two picks of the S twist alternating with 2 picks of Z twist in the weft. The weight of the fabric will be around 3 oz. per square yard. Sand crepe is made in 90 × 70 woven in small broken crepe weave, one of the yarns is 150 denier dull acetate and the other a two ply yarn consisting of untwisted 120 denier dull acetate plied with crepe twist 100 senier bright rayon. This is one of the many possible construction and yarn combinations. All silk crepe : 170 × 110; 13/15 denier warp and 18/20 denier weft; plain weave. The warp and weft arrangement will be 2 s twist alternating with 2 Z twist; fabric weight will be around 2 oz. per square yard. Alapca Crepe is a soft, dull acetate or rayon fabric made to simulate worsted crepe.

Crepe' back satin: Satin weave with crepe yarn filling which can be used with either side as the right side. Yarns are silk or polyester. The fabric looks like crepe on one side and satin on the other. A crepe back satin may be a warp flush sartin with a crepe filling that makes the back of the fabric look like a crepe.

Crepe' charmeuse: A fine, soft (as well as stiffer) crêpe in twill or plain weave (one warp and two weftsystems, i.e. a crêpe backing weft and a crêpe face weft). The face exhibits a satin crêpe effect, and the reverse a shaded crêpe effect. Use: for elegant womenswear.

Crepe' chiffon: A printed, true crêpe with a chiffon character.

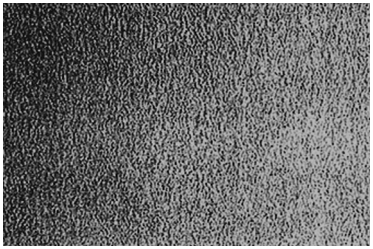
Crepe' cloque: See **Cloqué.**

Crepe crepe: The warp has a larger number of twists than in ordinary crepe, producing a very deep crepe effect.

Crepe' de chine, yarn: A silk yarn made from raw silk filaments with a more or less left-handed twist which have been very sharply twisted together to the right. Hard twisted yarn, usually with 1600-2500 TPM, generally made from 3-5 raw silk threads. It is used as weft in crepe-de-chine.

Crepe' de chine, material: Probably the best known silk fabric. A soft, supple dress fabric in plain weave with e.g. a raw silk warp and a crêpe weft

(produced from two S and Z highly twisted alternating yarns). It is usually either piece-dyed or printed.



Crepe de Dante: Crepe, made of silk and wool warp and silk, lisle and wool weft.

Crepe d'Espagne: Very light fabric, made with silk warp and fine woal filling oven like gauze.

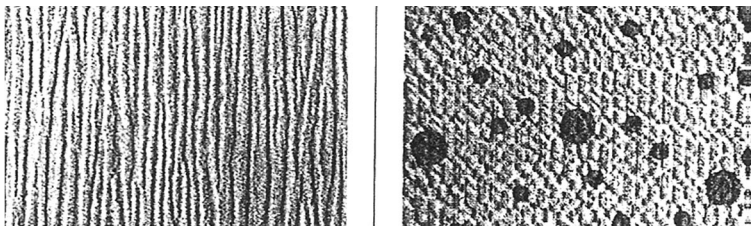
Crepe de Laine: French thin woollen dress goods, made in plain weave and slightly creped.

Crepe de Sante: Porous and close woven crepe with a coarse face, made of undyed wool and silk; used for underwear. Also made of cotton or linen.

Crepe fabric: A fabric, characterized by a crinkled, puckered or pebbly surface with highly twisted yarns in the weft and sometimes in warp or both. Similar effect is also obtained by using normal twisted yarn and crepe weave.

Crepe faconne: A crêpe fabric with small woven patterns, See **Façonné.**

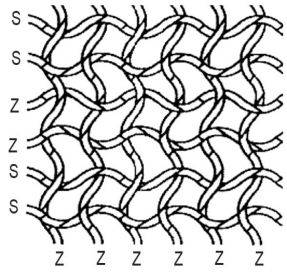
Crepe, finished: Crepe effect can also be achieved in finishing. Caustic soda solution may be printed onto cotton fabrics in a stripe or other pattern. The printed portions shrink and cause the fabric to cockle. Commercial styles: Plisse, blister, bark crepe , seer sucker.



Bark Crepe Plisse

Crêpe flamisol: A so-called matt crêpe fabric made from e.g. a warp delustred in spinning and a crêpe.

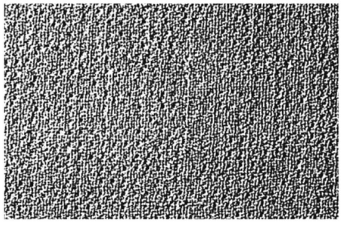
Crepe, Full: Is made with crepe yarns in both directions (Fig). The weave is either a palin or



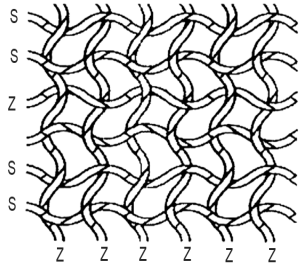
Yarn arrangement in Full Crepe

crepe construction. Commercial styles Georgette, chiffon.

Cre'pe geogette: A fine, matt crêpe fabric, similar to voile (gauze-like). It has a fine irregular surface with a grainy, dry, firm handle. The warp and weft consist of highly overtwisted (2000–3600TPM) crêpe yarns (ply yarns), with alternating pairs of S and Z twist yarns in a plain weave construction. The fabric is tightly woven but nevertheless transparent. It is dyed in the piece or printed. Uses: blouses, dresses, skirts, gowns and millinery.



Crepe, Half: has crepe yarns only in one direction usually the weft. See **Crepe fabrics.**



Yarn arrangement in half crepe

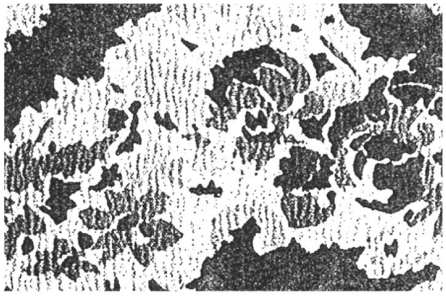
Crepe' georgette, silk: Warp of crepe threads with 2s/2z twist, weft also of crepe threads with 2s/2z twists. Lightweight, heavy, sheer fabric. Has quite a bit of stiffness and body. gives excellent wear. Has a dull, crinkled surface. Achieved by alternating S and Z yarns in a high twist in both warp and filling directions. Georgette has a harser, duller, more crinkled feel and appearance than crepe de chine. Uses: After 5 wear and dressy afternoon and weddings, lingerie, scarves, etc. Same uses as crepe de chineFabric is soft and slightly kinky.

Crepe gloria: A crêpe fabric having pleat-like lengthwise folds in a plain weave construction.

Crepe' jersey: A crêpe fabric resembling jerseyknit produced in a plain weave construction (with a crêpe weft consisting of 2 Z-twist and 2 S-twist yarns) used for womenswear fabrics.

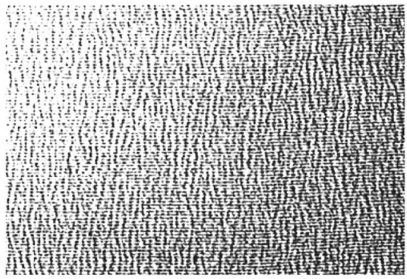
Crepe knitted: A fabric characterized by a crinkled or puckered surface. The effect may be produced by a variety of ways for example by the use of S and Z high twist yarns, by the use of particular knitted construction , or by chemical or thermal treatment to provide a differential shrinkage in the finished fabric.

Crepe' lavable: A more tightly plain woven, filament crepe fabrics with crepe yarns in the warp and normal yarns in the weft, example of an easily washable crepon or crêpe de Chine with only a slight crêpe effect. Used for dresses and blouses.



Crepe lisse: Very light highly finished crepe, made in gauze weave, slightly stiffened, comes in pale colours; the warp has fewer twists than in the crepe crepe; used for dresses and trimmings.

Crepe marocain: A light, finely ribbed, puckered crêpe (similar to crepon or crêpe de Chine) with a crimped, grainy surface, (slightly wavy weft), in plain weave, also patterned (jacquard fabrics). Generally warp of greige threads, weft of crepe multi twisted of threads with 2S/2Z twist.



Crêpe marocaise: A lustrous crepe comprising a viscose warp and viscose filament or spun yarn or crepe wool crepe yarn weft, lightly crimped appearance in taffeta or rib weave.

Crepe meteor: A highly finished silk crepe.

Crepe morette: Light weight crinkled fabric, made of fine hard spun worsted warp, widely set and a heavier slack twist filling.

Crepe' mosseline: A transparent, light crêpe fabric with a wool-like character produced in a so-called sand crêpe weave.

Crepe onde: A crêpe with yarns consisting of folded crêpe yarns with chemically spun viscose slub filaments.

Crepe pique: A matt crêpe fabric with a piqué-like character.

Crepe' reversible: A fine, double-sided, patterned crêpe fabric (produced mainly with jacquard effects); the face is e.g. matt with a crêpe character and the reverse is smooth and lustrous (similar to satin), other variations also exist.

Crepe romain: The finest crêpe fabric, similar to crêpe Georgette, with a check-like surface, in a panama weave construction (therefore also referred to as panama crêpe), with two alternating warp and weft threads.

Crepe satin: Silk, A generally small-figured crêpe with an ultra-bright face and a low elegent lustre reverse, the latter having a ribbed effect; the ground fabric is in plain weave and the pattern effects in satin weave using warp of greige thread and weft of greige twisted thread with 2 S-twist and 2 Z-twist threads.

Crepe satin faconne: Threads as in crepe satin but with a jacquard weave. The patterning produced by weaving method lends itself to rich effects which are very mich in demand, especially when over printed.

Crepe, Flat: Also called French Crepe or Lingerie Crepe but not exactly the same. It is the flattest of all the crepes with only a very slight pebbled or crepe effect hard twist alternating 25 × 22 in filling; warp has ordinary twist. It is

very soft and pliable, which makes it good for draping. It is very light weight - 2 times as many ends as picks. It may be white, coloured, or printed. Most of it launders well. Uses: Accessories, blouses, dress goods, negligees, pyjamas and other pieces of lingerie and linings.

Crepe, silk: They all have a pebbled, rough feel and appearance. Yarns have a high twist in the filling or the warp or both. Most crepes launder well with care. Crepe-back satin, satin-back crepe, crepe-satin, or satin-crepe. Satin weave on the face and a crepe effect on the back obtained with twisted crepe yarns in the filling - 2 or 3 times as many ends as picks per inch. It is a soft fabric which is reversible. It is usually piece dyed. Very interesting effects can be obtianed in a garment by using both sides, in different parts. E.g. the crepe side for the body and trim or binding with the satin part up. Uses: Dresses, blouses, linings, after 5 wear

Crepe suzette: Synonym for Crepon Georgette.

Crepe yarn: See **Crêpe yarns.** (a) A highly twisted (Generall 1200-4000 TPM) yarn which may be used in the production of crepe' fabrics in woven or knitted form. (b) A balanced hand knitting yarn with a plited appearance produced by twisting together 3-4 two folded yarns normally using 2s and 2z twists. See **Yarn, crepe.**

Crepe/Georgette yarn: These are highly twisted, tightly folded yarns, produced in S or Z twist, used to produce crêpe fabrics in various patterns thereby giving the fabric its characteristic puckered crêpe effect after the so called Crêping.

Crepe-de-chine (French Yarn): See **Crepe de chine yarn**, **Crepe de chine material**.

Crepe, weft knitted: An irregular surfaced palin or rib faced weft knitted fabric usually constructed for example, from knit float, or knit tuck loops introduced in a predetermined random or other order.

Crepe, warp knitted: A double faced warp knitted fabric , the construction of which contains more rows of cleared stitches per unit of lrength on one side than the other.

Crepe-de-chine fabric: See **Crepe de chine material.**

Crepine: (1) Black or coloured French silk dress goods with very small dotted patterns; (2) A fringe.

Crepeing: Development of a special surface effect for Crêpe products in the chemical finishing stage with completely tension-free treatment. Up to 40% fabric contraction in the crêpe yarn system direction.

Crepoline: Light sheer fabrics of silk or cotton, woven to produce a rib-like crepe effect warp wise.

Crepon fabric: It is another of the crepe group of fabrics but stronger. These are highly twisted, tightly folded yarns, where S or Z twist yarns is put according to a plan and another method is to use yarns with varying twists, used to produce crêpe fabrics in various patterns thereby giving the fabric its characteristic puckered crêpe effect after the socalled creping. A typical construction is to use 90 × 50 to 125 × 55 structure using 100-150 denier rayon in warp and 150 – 200denier crepe twist rayon in the weft.A dress fabric in crepe but heavier and more rugged than the average crepe. Usually made in silk or Rayon. Crepe effect appears in the direction of warp and is produced either by different degrees of twist in the yarn , by employing only right or left hand twist yarns or by weaving some warp yarns slacker than the others.

Crepon Georgette: A georgette in which all the weft yarn have been twisted in the same direction.

Crepon Givre: A twilled crepon (see) with frosted effect.

Crepon yarn: A crêped material which only has crêpe yarns of one twist direction in the weft or both the warp and weft, or even 3 Z-twist threads alternating with 2 S-twist threads, which gives rise to the typically wavy folds. It is generally produced in plain weave.

Crescent: In needle-point lace the usually crescent shaped part of the flower pattern surrounded by raised cordonnet.

Crescentin: Cloth made of waste silk in France.

Creseau: (1) See **Carisol**; (2) Twilled French woollen, napped on both sides, similar to the kersey.

Crespine: Silk net in the 16th century; used as covering for the hair.

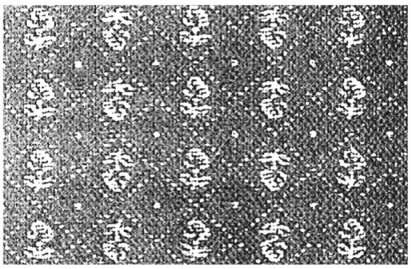
Crespinette: Silk hair net in France.

Cresson: A shade of green resembling the colour of water-cress; also **'**cress-green'.

Crete: A fancy braid, composed of two groups of straight threads holding a heavy, trailing cord, forming picot edges.

Crete lace: Bobbin lace made of various coloured slack twist silk or flax in geometrical designs which are outlined with coloured thread. Similar to Torchon.

Cretonne: First produced in Cre'tonne, a village in Normandy, hence the name. A printed or plain strong cotton fabric, woven with a fine cotton warp



and a thick weft spun from waste cotton. The weave may be plain or twill. In appearance, cretonne is similar to Chintz but doesnort have a glazed treatment. Fairly inexpensive. Used for curtain, loose covers, bed covers, upholstery, bed linen, shirts etc. See **Chintz.**

Crevette: The deep pink of the shellfish of the same name.

Crewel: Loosely twisted, fine two-ply worsted yarn for embroidery.

Crewel lace: Narrow edging, made of crewel yarn.

Crewel needles: These hand sewing needles have a sharp point with a long narrow eye. They are used with embroidery floss, silk ribbon and heavier fabrics. Size 1 to 10

Crewel stitch: Same as stem stitch

CRF: Crease resistant finish.

Cricketing: Fine twilled flannel dress goods; used in England for sporting costumes.

Crimp: (1) Waves and curves exist in virtually all staple fibres and are especially evident under the microscope. The nature of the crimps and their frequency vary widely. Crimps hold fibres apart thus producing numerous air cavities in the yarn which influence to varying degrees its bulk, softness of handle and insulation properties. The waviness of a fibre, i.e. the condition in which the axis of a fibre under minimum external stress departs from a straight line and follows a simple or a complex or an irregular wavy path.

Note: (a) In its simplest form, crimp is uniplanar and regular, i.e. it resembles a sine wave, but it is frequently much more complicated and irregular. An example of three-dimensional crimp is helical.

(b) Crimp may be expressed numerically as the number of waves (crimps) per unit length, or as the difference between the distance between two points on the fibre when it is relaxed and when it is straightened under suitable tension, expressed as a percentage of the relaxed distance. (2) The difference in

distance between two points on an unstretched fibre and the same two points when the fibre is straightened under specified tension. Crimp is expressed as a percentage of the unstretched. (3) The difference in distance between two points on a yarn as it lies in a fabric and the same two points when the yarn has been removed from the fabric and straightened under specified tension, expressed as a percentage of the distance between the two points as the yarn lies in the fabric. The waviness or distortion of a yarn owing to interlacing in the fabric.

$$\% \text{ Crimp} = [(l_y - l_{fab})/l_{fab}] \times 100$$

Note: (a) In woven fabric, the crimp is measured by the relation between the length of the fabric test specimen and the corresponding length of yarn when it is removed therefrom and straightened under suitable tension. The crimp may then be expressed numerically as a percentage or as a ratio, i.e. the ratio of yarn length to fabric length. In both methods, fabric length is the basis. (b) Although this definition could logically be applied to knitted fabrics or fabrics of pile construction, it is usual to employ special terms, e.g. stitch length, terry ratio.

Crimp, as applied to a continous-element Zipper: The predetermined formation of the monofilament cross section at the point where the continuous element is interlocked.

Crimp amplitude: The height of displacement of the fibre from from its uncrimped condition.

Crimp contraction: (or crimp retraction). Defined as the contraction in length of a previously textured yarn caused by the formation of crimp in individual filaments under specified conditions of crimp development.

Crimp crepe: The term is not quite correct. What is meant is fabrics with a crêpe-like effect a) like the crepon printed effect on cotton or wool, or b) with the use of crimp yarn.

Crimp depth, in grease wool locks: The perpendicular distance between the peak and valley of the waves.

Crimp deregistering: The process of opening a tow band by causing the peaks and valleys of the crimp to lay randomly rather that uniformly.

Crimp development medium, for testing textured yarn: An environment that allows the temporary set of fibre crimp to be overcome and that allows the filaments to assume their permanently set configuration.

Crimp effects: See **Crepon printed effects.**

Crimp elongation: Max. stretch or elongation of a crimped yarn/thread (or fibre) under tensile loading up to the neutralisation of crimp or up to the start of effective material elongation. Is expressed as a ratio to original length, and serves as a measure of volume increase due to texturing, i.e. high crimp elongation is equivalent to large volume increase.

Crimp energy: The amount of work required to uncrimp a fibre.

Crimp, fibre: (1) The waviness of a fibre expressed as waves or crimps per unit length. (2) The difference in the length of a fibre when lying in an unstretched codition and when stretched under a specific tension, expressed as a percentage of the initial length.

Crimp frequency: The crimp level, or number of crimps or full waves per unit length (inch) of a fibre related to the straightened length of the fibre/yarn or tow.

Crimp, in textile fabrics: The difference in distance between two points on a yarn as lies in a babric and same two points when yarn has been removed from the fabric and straightened under a specified tension expressed as a percentage of the distance between the points as the yarn lies in the fabric.

Crimp index: (crimping arc count). Number of crimping arcs/10 cm, independent of count. Controlled by texturing in the case of textured yarns.

Crimp, latent: A crimp that inherently present in the specially prepared fibres or filaments and which can be developed by a specific treatments such as thermal relaxation or tensioning and subsequent relaxation.

Crimp Modulus: Force required to stretch crimped (textured) yarn by 100%: e.g. at its lowest with polyamide 6 (2.1), polyamide 6.6 (2.4), at its highest with polyester (3.5). polyester (3.5).

Crimp Process: Designation for the IWS (International Wool Secretariat) process for inducing crimp in smooth wools, especially those of New Zealand origin.

Crimp recovery: A measure of the ebility of a yarn to reurn to the original crimped state after being subjected to tension.

Crimp retraction: See **Crimp contraction.**

Crimp setting: An aftertreatment to set the crimp in yarn or fibre. Usually heat and steam are used, although the treatment may be chemical in nature.

Crimp stability: (1) The ability of a textured yarn to resist the destruction of its crimp by mechanical and thermal stress, Crimp stability is normally

expressed as the ratio of values of crimp retraction measure after and before specified mechanical and/or thermal treatment of the yarn.

Crimp stability: (2) The ability of a textured yarn to retain its crimp, measured before and after mechanical or thermal stress imposed under specified conditions.

Crimp, staple: See **Staple crimp.**

Crimp width-increse Wool locks: The average distance between two mid points of two adjascent valleys and the two waves.

Crimp Yarn, in fabrics: The difference in distance between two points on a yarn as it lies in a fabric and the same two points when the yarn has been removed and straightened under specific tension expressed as a percentage of the initial distance.

Crimp, types of: In man made fibres crimps are produced during the manufacturing stage using different methods, unlike in natural fibres it is ocuuring in the fibre itself. Different types of crimps are : (a) Stuffer-box crimping: Crimp-free filaments in tow form are by mechanical means or fluid-jet forcibly injected into a stuffer-box where they buckle and fold to form crimps (optionally followed by crimp stabilization by steam/hot air). (b) Bicomponent fibre crimp: Contrived crimp imitating the crimp structure of wool (paracortex/orthocortex) produced with Bicomponent fibres comprising components of differering shrinkage characteristics. Shrinking treatment then creates a highly stable threedimensional form of crimp (e.g. Superbulk-PP). (c) Hot-water crimp: It is created by immersing filaments in a relaxed state in hot water (caused by unequal shrinkage of fibre matrix and sheath) in the form of irregular three-dimensional arcuate crimp.

Crimped fibres: Wool-like crimped man-made fibres after texturing.

Crimped viscose twill: Bulked viscose yarn woven into plain colour fabric of medium weigh. The bulking adds warmth. The fabric creases slightly. It has a soft feel rather like Flannelette. Used for childrens clothes nightwear.

Crimped yarn: See **Bulk yarn (textured).**

Crimping: The process of imparting crimp to tow or filament yarn.

Crimps: Plain woven cotton cloth, made in England for the export trade. Certain warp threads, wound on a separate beam, are held slack, forming crinkled warp stripes.

Crimson: A bluish-red. See **cremosin**. Originally made from the **kermes** insect.

Crimson lake: A synonym for **carmine**.

Crin: (1) French term for horse hair; (2) Silk, heavier than cocoon silk, obtained by killing the silk worm and emptying its glands containing the silk substance.

Crin d'Afrique': (crin végétal, African fibre). A coarse variety of Palm fibres (*Chamaerops humilis*) with a similar texture to horsehair native to North Africa and Southern Spain. Used for upholstery and braids. It is usually black, dyed with cationic dyes.

Crin vegetal: French name for "vegetable horsehair," a stiff, strong and durable leaf fibre yielded by the scrub palmetto; used as substitute for animal hair, stuffing, etc. See also **Artificial horsehair. Crin d'Afrique.**

Crinkle yarn: See **Textured yarn, Crinkle process**.

Crinkle: (1) Crimp, e.g. the production of crimp yarn by the texturing of yarn hanks made from bicomponent yarns (hot air treatment in a textile tumbler).

(2) A wrinkled or puckered effect in fabric. It may be obtained either in the construction or in the finishing of the fabric.

Crinkle process: Texturing process (knit-set-deknit process) for polyamide and polyester textured yarns. The yarns are used in knitgoods, jerseys and hosiery garter tops.

Crinkling: In the sense of uneven waves, for example through excessive stretching of seams, edges, folds, pleats during ironing.

Crinoline: (1) A loosely woven stiff cotton, similar to cheese cloth, with hair filling. It may now be produced from synthetic fibre and stiffened. Made in white, grey and black. Used as an interfacing or stiffening material for hats.

(2) A stiff, heavily sized fabric, like buckram used as an interlining, or horse hair or wire or to support areas such as the edge of a hem.

Criolla: Native South American sheep yielding coarse wool.

Cristal: Dress goods, made with fine silk warp and wool filling which form alternate fine and heavy (often irregular) ribs.

Cristaline: Loosely woven silk dress goods.

Critical application value: In a low add on easycare finishing system, the amount of finishing liquor which must be applied to a given fabric to avoid a non uniform distribution of cross linking after drying and curing.

Critical chain length: The minimum chain-length required for the entanglement of the polymer chains.

Critical defect: A serious defect that judgement and experience indicate is likely to prevent the usage or the proper performance of a product from its intended purpose.

Critical difference: The observed difference between two test results, which should be considered significant at the specified probability level.

Critical length: see **Breaking length.**

Critical micelle concentration: (CMC, ck). Characteristic concentration of surfactants in solutions, above which the number of micelles increases to the extent where the concentration dependency of specific physical properties is rapidly changed. The critical micelle concentration is determined by the intersection of two extrapolated curves, which describe the property of the solution as a function of concentration.

Critical Radiant Flux: The lowest intensity of radiant heat that will cause a floor covering to propogate flame.

CRL: Abbreviation for **Constant-Rate-of-Loading.**

Croceo- (L): Saffron-coloured. See **saffron**.

Croceous: Saffron-coloured. Also 'crocreal'.

croco- (L): Orange.

Crochet Knit: Fancy openwork knit in a variety of colours and patterns, often produced in traditional designs, e.g. Aran. The fabric resembles crochet but is made on a knitting machine which works on the same principle as Rashet machines; however they are narrower and the needles are generally horizontal. Any man-made fibres may be used but they are mainly acrylic. Used for sweaters, shirts, dresses, braids, trims and scarves.

Crochet quilt: Twilled or Jacquard figured, bleached cotton quilt, woven with one set of warp and one set of filling.

Crocheting: The interlocking of loops from a single thread with a hooked needle. Crocheting can be done either by hand or by machine.

Crocking: Transfer of colour from dyed or pigmented fabric by rubbing as a result of insufficient dye penetration or fixation, the use of improper dyes or dyeing methods, or insufficient washing and treatment after dyeing operation. Wet crocking refers to transfer of colour from a piece of dyed fabric to another piece of fabric, or to an undyed area of the same fabric, while the fabric is wet. Dry crocking means the same, except that the fabric is dry.

Crockmeter: Standard test equipment for testing the Colour fastness to rubbing of dyed or printed textiles. Traditionally hand-operated, electronically-controlled crockmeters have also become available recently.

Crocodile: Crocodile skin ia very expensive and only used for top quality shoes and hand bags.It is difficult to tan. It can be distinguishred from Alligator by the fact that the marking are mor uneven.

Crofting: Scotch term for bleaching linen on the grass.

Croise': (French croisé = twill). A twill weave cotton fabric (generally 2/2), smooth on the face side, and heavily brushed on the reverse to a varying degree. It is generally extremely difficult to differentiate between finette and croisé. The former is generally more finely ribbed, the latter more heavily ribbed. There is, however, an intermediate designation as well (croisé-finette). It is available in the market bleached white, piece-dyed in delicate colours, or printed. Uses: nightwear, skirts and winter wear.

Croissure: A technique of twisting raw silk over itself in the process of reeling with the object of consolidating the different filaments constituting the raw silk, rounding off the angularities of the thread and squeezing off the extra moisture and gum.

Croissure pulleys: They are guide pulleys used in reeling machine for formation of croissure.

Crompton axminster: Rug or carpet, having a tufted pile, made on power loom.

Crooked cloth: See **Baggy cloth.**

Croop: Silk, especially after immersion in a weak acid, when compressed and rubbed, gives out a peculiar rustling sound, which is known as 'croop'.

Cropping: See **Shearing.**

Croquis: A balanced design of print. A croquis should give the impression that would be seen if a frame were placed over any section of the finished cloth. Although not in repeat, a croquis will give the feeling of being in repaeat. Croquis is a french word meaning sketch.

Cross-back width: See **Back width.**

Cross-chest width: in body measurements: The distance from the front breakpoint to front break point

Cross direction: The width dimension, within the plane of the fabric that is perpendicular to the direction in which the fabric is being produced by the machine.

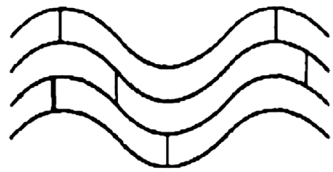
Cross dyeing effect; Cross dye effect: Variation in dye pick up between yarns or fibres, resulting from their inherent dye affinities.

Cross dyeing: (1) When two components in a blends are dyed in two different shadeswe get a final cross dyed fabric.

(2) When dyeing one component in a blend the other component is tinted or dyed which has to be removed before dyeing the second component.

Cross lapping: The production of a nonwoven web or batt from a fibre web by traversing it to and fro across a lattice moving a tright angles to the direction of traverse.

Cross-Linked Polymers or Network Polymers: In this type of polymers, the monomeric units are linked together to constitute a three dimensional network. The links involved are called cross links. Cross-linked polymers are hard, rigid and brittle because of their network structure. Common examples of this type of polymers are bakelite, formaldehyde resin, melamine, etc.



Cross-linked

Cross linkers: Chemicals which build linear molecules of macromolecular chemicals with reactive sites into networks of three-dimensional structure by forming intermolecular bridges. See **Cross-linking.**

Cross-chest width, in body mesurements: The distance from front break point to front break point.

Cross Linking: Connecting of linear molecular chains to form three-dimensional networks, e.g. of synthetic resins in Resin finishing. A polymer-like reaction of two macromolecules with bifunctional bridge-type cross-links causes covalent bonding of polymers via their side chains.

Cross-linking resins: Amongst the reactive long chain polymers used for textile applications are found acrylamides and methacrylamides with N-methylol or N-methylol ether groups. Acrylamide and its N-methylol compound are easily soluble in water. The some what lower solubility of methacrylamide and its methylol compound is of benefit for emulsion polymerisation. Reactive long chain polymers used for textile applications containing carboxyl groups as found in acrylic acid or methacrylic acid. They are used to stabilize dispersion systems, provide adhesion to substrates, change mechanical properties and alter the reaction towards solvents after application. Carboxyl groups are also involved in the cross-linking process. The reaction of mixed polymers having only carboxyl groups with hexamethoxymethylmelamine suggests that the crosslinking here occurs via a methyl ester bridge.

Cross migration: When dyeing blend fabrics containing polyester fibres, the second fibre is often heavily stained by the disperse dyestuffs used for the

polyester which is called cross migration. It will be necessary to use a two-bath dyeing process or a subsequent clearing bath for a single bath.

Cross over point: Crossing point between warp and weft yarns in woven fabrics.

Cross stich: Embroidery stitch. Method: Bring the needle out at the lower right-hand side, insert the needle four threads up and four threads to the left and bring out four threads down, thus forming a half cross stitch, continue in this way to the end of the row. Complete the other half of the cross as shown. Cross Stitch may be worked either from left to right, as shown, or from right to left. It is important that the upper half of all the stitches lie in one direction.The cross stitch is worked on linen, scrim, canvas, or any open-meshed material. If done on a flat, smooth surface, it will be necessary to work over canvas, afterwards drawing out the canvas threads. The canvas should be well basted on the material, the warp threads of the canvas lying *perfectly straight* on a line with the warp threads of the material on which the pattern is worked. The stitches should always run the same way. If the first ground stitches are made from left to right, from bottom towards the top, the cross stitches should be made from right to left from the top towards the bottom. All the ground stitches run one way and the cross stitches in the opposite way.

Cross Stripes: Stripes running weft wise.

Cross-dye effect: See **Cross dyeing effect.**

Cross flow membrane filtration in water/effluent treatment: A separation of the components of a liquid by semipermeable membrane through the application of pressure and parallel flow to the memnbrane surface. Includes the processes of reverse osmosis, ulgtrafiltration, nanofiltration and microfiltration.

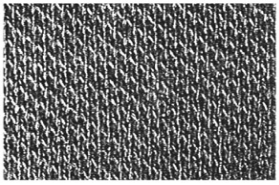
Cross-linkers: Chemicals which build linear molecules of macromolecular chemicals with reactive sites into networks of three-dimensional structure by forming intermolecular bridges. See **Cross-linking.**

Cross-linking: The stabilization of cellulosic or manufactured fibres through chemical reaction with certain compounds in such a way that the cellulose or manufactured polymer chains are bridged across or "crosslinked." Cross-linking improves such mechanical factors as wrinkle resistance. Random cross-linking in manufactured polymers is undesirable and leads to brittleness and loss of tensile strength.

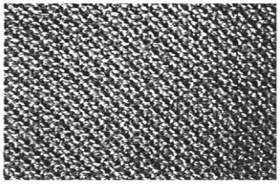
Cross-section: The shape of an individual filament when cut at right angles to its axis.

Normal shapes for manufactured fibres vary, e.g., round (nylon, polyester, polypropylene, and some acrylics), serrated or crenular (viscose rayon, acetate, and triacetate), bean-shaped (some acrylics and modacrylics). The shaped of manufactured fibres can be modified by changing the shape of the holes in the spinneret. Cross-sectional variants are produced intentionally in wide variety of shapes for different physical effects such as change in lustre or hand, improved resistance to soiling, etc. Examples are trilobal (T and Y) and other multilobal shapes (cruciform, K, X, pentalobal, star, etc.), I-beam, ribbon, square, triangular, elliptical, hollow, and many others.

Cross-tuck, plain (Pique) (weft knitted): A plain weft knitted fabric in which the construction is based on a repeat of either two or multiples of two courses. The original construction consisted of knitted loop and single course tuck stitches arranged to give a two couse repeat where tuck loop alternated with knitted loop within each course and between one course and another.



Cross tuck (Pique') face



Back

Other construction incorporates two or more course tuck stitches when the tuck loops alternates with knitted loops within the course and between one course and another.whole courses of knitted loops may be interspaced between the courses of the tuck and knitted loops.

Cross weaving: Where warp threads are crossed with each other, as in the gauze or leno.

Crossbred: Middle grade wool, taken from sheep crossed with merino. The fibre is usually of good length, coarser than merino.

Crossing warp: Term for those warp ends which are deflected in the gauze weave and are wound around the straight war.ps.

Crossings: Sections where the warp and weft patterns combine more by chance than by design.

Crotch, in anatomy: The body area adjascent to the vertex of the included angle between the legs.

Crotch depth: See **True rise.**

Crotch height: See **Inside-leg length.**

Crotch seam: The short seam from the back of the pants fly to the inseam.

Crottle, crotal: Having the golden-brown colour of lichen.

Crown, in anatomy: The top of the head.

Crows feet: A fabric defect consisting of breaks or wrinkles of varying degrees of intensityand size, resembling bird's footprints in shape, and occurring during wet processing of fabrics.

Crow weave: An uneven sided, four harness twill weave, the warp crossing over three filling threads and depressed under one.

Crowsfoot weave: A broken twill weave 1-up 3-down or 3-up 1-down with two ends to the right and two ends to the left , commonly reffered to as a four-harness satin or bocken crow.

Crow feet weave: A broken twill weave 1-up and 3-down or 3-up and 1-down with two ends to the right and two ends to the left, commonly referred as a4-harness satin or broken crow.

Crown Lace: English needlework of Queen Elizabeth's reign, having royal crowns in the design.

Crown Lining: Sized tarlatan or lighter weight of crinoline; used for lining women's hats.

Croydon: Plain woven stout and bleached cotton sheeting in England, given a stiff and glossy finish with the aid of size.

Crown, in anatomy: The top of the head.

CRSIT: abbrev. for: Centre de Recherches de la Soierie et des Industries Textiles (French Research Centre of the Silk and Textile Industry), Lyon, France.

CRTM: abbrev. for: Centre de Recherches Textiles de Mulhouse (French Textile Research Centre of Mulhouse), Mulhouse, France.

Crudillo gallo: Linen cloth made in Spain.

Cruel: Another name in the 17th century for Caddis

Crumb cloth: Coarse and heavy damask in gray, made to be embroidered in coloured yarns around the patterns.

Crutchings: Wool which was removed same time before the shearing, in order to improve the growth of the fleece.

Crushed feathers: Feathers and feather fibre resulting from curling , crushing, or chopping feathers without removing the quill.

Crushed feathers: Feathers and feather fibre

Crushing, In Carpet: Matting of carpet fibres.

Cushioned Backed Carpet: Carpet, which has a cushion as a part of the backing.

Crutched Wool: Wool that has been clipped from rear end and udder area of ewes in the early spring to prevent collection of manure and fly strike.

Crystal: A very fine highly finished woollen oif white colour formerly made in England for the export trade; used for nun's clothes; now obsolete.

Crystal gum: (1) Dextrines. (2) Industrial gums.

Crystalline: Made up of crystals. The term crystalline applies to sections of all chemical fibrer, which consists of alternate crystalline and amorphous (noncrystalline) regions. These regions are influenced by manufacturing conditions and to some extent can be controlled. The degree of crystallinity influences the physical properties of fibres.

Crystalline growth: (1) The expansion and development of a crystal. The process involves diffusion of the crystallizing material to special sites on the surface of the crystal, incorporation of the molecules into the surface at these sites, and diffusion of heat away from the surface of the crystal. (2) The transformation of disoriented molecules, usually of the same substance, to a higher state of order. This process generally occurs rapidly for small molecules; however, the process is slow for polymer molecules and is arrested at temperatures below the glass transition temperature.

Crystalline melting point *(T m):* This is the range of melting temperature of the crystalline domain of a polymer sample and is accompanied by change in polymer properties. It is also the first-phase transition when the solid and liquid phases are in equilibrium.

Crystalline polymers: A polymer with an ordered structure, which has been allowed to disentangle and form a crystal.

Crystallinity: (1) The state of quality of being crystalline. (2**)** The extent to which a polymer exists in a lattice structure.

Crystallization: The formation of highly-ordered substances (crystals) from solutions or melts. In polymers, crystalline areas are interspersed with amorphous areas in a lattice-like network. (Also see **Microlattice**).

CS: abbrev. for: Commercial Standard (USA).

CSC900T: Social Standards in textiles and clothing introduced in China by CNTAC in 2005.

CSN: Ceskoslovenskych Norem (Czechoslovakian Foreign Standard).

CSIRO: Commonwealth Scientific and Industrial Research Organization, East Melbourne, Australia.

CT: Triacetate fibres, Standard abbrev. for textile fibres.

CTA: Triacetate fibres, Standard abbrev. For textile fibres.

CTNSS: Centre for Thai National Standard Specifications, Bangkok, Thailand.

CTTN: Centre Technique de la Teinture et du Nettoyage (French Technical Centre for Dyeing and Drycleaning).

CU: Cupro fibres (Standard abbrev. for textile).

Cuban Bast: A fine, soft but strong cloth like bast of the Hibiscus elatus in Cuba; used for millinery braids, etc.

Cuban hemp: Strong smooth fibre, yielded by the leaves of the Furcraea cubensis of Central and South America.

Cubi hopi: Indian, name for the aromatic sumac; used for baskets, which can hold water.

Cubex: Wash test machine especially for determining the felting shrinkage of wool fabrics.

Cubica: Fine, thin English worsted serge, usually red; used for linings, suiting, etc. See also **Plainback**.

Cucumber green: The dark green colour of the rind of the cucumber.

Cudbear, Archil: See **Natural dyes.** A violet dyestuff, obtained from a stone moss; used on animal fibres.

Cuero de Diablo: Stout cotton denim in Colombia.

Cuir Laine: French, wool winter dress goods, similar to the ratine,, woven in a twill.

Cuirtain Fine: twilled fabric, made of white wool and used for clothing in medieval Scotland.

Cultivated: Indian and other Asiatic countries silks, made of "cultivated" silk worm as compared with the "wild" silk.

CUP: Cupro fibres.

Cuff (lined): A cuff with interlining placed between the two pieces of body fabric.

Cuff (one-piece): A two-ply cuff formed by folding over a single piece of fabric, usually with a lining in between.

Cuff (topstitched): A cuff with an added row of stitching along the folded edges.

Cuff (two-piece): A cuff in which two identical pieces of fabric, usually with

a lining in between, are joined by a seam along the edge, then turned and sometimes topstitched near the folded edges.

Cuir: A yellowish-brown; the colour of leather.

Cuite: Nett silk from which the gum has been completely removed. See **bright silk.**

Cuite silk: Degummed natural silk.

Cul de Paris: Emphasised rear of womens outer dress, using a frame or padding; See also **Paris tail, French tail, Bustle.** Used in Neo rococco, Victorian period.

Culottes: Knee breeches; at first quite broad, later close fitting, baroque, rococo period.

Cumquat, kumquat: The yellowy-orange of the cumquat fruit.

Cupreous: The reddish brown colour of copper; copper-coloured; a bronze colour.

Cumulative toxicity: Effect on an organism caused by successive exposures.

Cunningham: A Highland tartan, composed of wide black stripes and narrow red, black and white lines over a red ground.

Cup seaming: A type of sewing that joins edges (usually two selvedges) by means of a chain stitch.

Cupra: The term used originally, and still in use, to describe fibres of regenerated cellulose obtained by the cuprammonium process.

Cuprammonium: Cuprammonium hydroxide.

Cuprammonium fluidity: It is well-known that purified natural cellulose dissolves in cuprammonium hydroxide solution to give a solution that is viscous even at low concentrations. Cellulose that has been partially hydrolyzed or oxidized dissolves to give less viscous (more fluid) solutions at the same concentration.

Cuprammonium hydroxide: (cuoxam, Schweizer's reagent), $[Cu(NH_3)_4](OH)_2 \bullet 3H_2O$. Dark blue solution. Production: add a saturated solution of copper(II) sulphate ($\bullet 5H_2O$) in distilled water to 25% ammonia; thoroughly rinse the precipitate with distilled water, and dry. The resultant powder is durable for a long period, and is dissolved for use with 25% ammonia. Use: for the chemical identification of cellulose fibres and silk, and also for the quantitative determination of the degree of polymerisation (DP) of cellulose fibres.

Cuprammonium rayon: See **Cupro fibres.**

Cuprammonium silk: See **Cupro fibres.**

Cupric acetate: (acetic copper, neutral copper acetate, copper acetate), $u(CH_2COO)_2 \bullet H_2O$. Molecular weight 199.67; density 1.88. Easily soluble bluish green crystals. Use: resisting agent for indigo resist products; oxygen carrier with aniline black.

Cupric chloride: (hydrochloric copper), $CuCl_2 \bullet 2H_2O$, molecular weight 170.52. Greenish crystals, easily soluble (colour green, blue diluted). Use: highly effective oxygen carrier for aniline oxidation black.

Cupro: Now the official designation for rayon produced by the Cuprammonium method. A very soft silky fibre. It is often still referred to as Bemberg, the name of the company first making it.

Cupro fibres: A class of Cellulosic fibres, regenerated, produced by the uprammonium process from raw materials containing cellulose (predominantly cotton linters, also wood pulp.

Cuprous: (1) Chemical: copper (I) compounds. (2) Sometimed used for denoting Cupro fibres.

Curing: (1) A process in which heat treatment for several minutes or heat treatment for short time a higher temperature (flash curing) or long time treatment at lower temperature and high regain is done to effect chemical reactive to fix a dye or chemical.

(2) See **Vulcanization.**

Curing conditions: Cross-linking conditions in the Cross-linking of permanent finishing agents.

Curing curve: The graphic representation of the achievable dry crease angle (Crease recovery angle) relative to the cross-linking temperature with constant cross-linking times for a specific permanent finish agent.

Curing machine: Used for the continuous heat treatment of textiles, particularly for curing (cross-linking) permanent finish agents (Dry cross-linking process). Designed on the hot flue principle, with driven rollers, generally stepless speed control, for temperature measuring and regulating systems, various infra-red radiators being located upstream for quicker fabric heating.

Curing machine, Festoon type: Condensing machine with a large fabric content and tension-free fabric guiding for (benzine-free) pigment printed

knitted fabrics. Festoon system with special insulation-covered carrier rods rotating during fabric run.

Curing process: Usual term in resin finishing for the dry cross-linking process (See **Cross-linking**).

Curl: See **Snarl, Kink.**

Curl or loop: A thin basic yarn with a thicker one twisted with it, but fed at a different speed so that regular loops are joined. This type of yarn can be made into a variety of fabrics.

Curl yarn: (1) A type of yarn which presents curls or loops of various sizes all along its surface. It is usually produced as follows: Two threads, a thick and a thin are twisted together, the thin being held tightly and the thick thread slackly twisted around it. This two-fold yarn is then twisted in the reverse direction with another thin thread, this untwisting throwing up the thick thread as a loop, the two fine threads holding the loops firmly.

(2) Usually a three-strand yarn; first a thin strand (well stretched) having curls and nubs, made by winding slackly a thick thread around a thinner one, which is well stretched, after which a third strand, also thin, is wound around the whole, holding the thick yarn, which forms the curls; made in cotton, wool or silk; used for ratine, etc. See also **Loop Yarn.**

Curled pile: Long wool or silk pile having a curl, usually found in artificial fur.

Curled selvage: Self descriptive.

Curragh Lace: See **Irish Point.**

Currelles: English faibric, made of worsted and silk in the 16th century.

Curtain Serge: Stout woollen serge; used for drapery.

Curve, force-deformation: See **Force-deformation curve.**

Curve, force-elongation: See **Force-elongation curve.**

Curve, force-extension: See **Force-extension curve.**

Curve, load-deformation: See **Load-deformation curve.**

Curve, operating characteristic: See **Operating characteristic curve.**

Curve, stress-strain: See **Stress-strain curve.**

Curve, tensile hysterisis: See **Tensile-hystrisis curve.**

Curved blade applicator: (CBA). A low pick-up application system. Liquor is applied over the entire width of a stationary curved blade and forms a

fine film which is stripped off by the fabric. Unused liquor at the edges is recirculated for reuse.

Curved expander rollers: The name describes the curved form of these Expander rollers. A rubber hose runs on the curved axis, and is held at regular intervals by several ball bearings. The expansion effect results from the varying distances which goods have to travel.

Cushion: A padded pillow of barrel or some other shape; used as foundation in bobtxin lace making to which the pricked pattern is pinned.

Cushion Stitch: Similar to cross stitch in Berlin work.

Cushion, attached: See **attached cusion**.

Cushion, for inflatable restraints: The inflatable fabric envelope portion of a module.

Cushion, attatched, in for yarn floor covering: A cushioning material such as foam or rubber or urethane etc. adhered to the backing fabric side of a pile yarn floor covering to provide additional dimensional stability, thickness and padding.

Cusick drape test: In the drape test the specimen deforms with multi-directional curvature and consequently the results are dependent to a certain amount upon the shear properties of the fabric. The results are mainly dependent, however, on the bending stiffness of the fabric. In the test a circular specimen is held concentrically between two smaller horizontal discs and is allowed to drape into folds under its own weight. A light is shone from underneath the specimen and the shadow that the fabric casts, is traced onto an annular piece of paper the same size as the unsupported part of the fabric specimen. The stiffer a fabric is, the larger is the area of its shadow compared with the unsupported area of the fabric. To measure the areas involved, the whole paper ring is weighed and then the shadow part of the ring is cut away and weighed. The paper is assumed to have constant mass per unit area so that the measured mass is proportional to area. The drape coefficient can then be calculated using the following equation: Drape coefficient =Mass of shaded area X 100/Total mass of paper ring % The higher the drape coefficient the stiffer is the fabric.

Cut: (1) An American term for guage. The number of needles per inch in the circumference of the cylinder or dial of a knitting machine.

(2) (Na Cut). An American yarn numbering system used for woollen yarn measurement. 1 Cut = 1 hank at 300 yards/lb. 1 cut=0.605Nm.

Cut and sewn knitwear: Garments made from pieces cut from panels or lengths of fabric, usually with integral ribs.

Cut Cashmere: Twilled woollen dress goods, having fine runs warp wise often of a different colour.

Cut fabric: Usually denoting tubular knits or Fents, made up using patterns and sewn together to form garments.

Cut-Make-and-Trim: Usually denoted as CMT.

Cut, in asbestoes and glass yarns: The no. of 100 yard lengths of yarn per pound. An indirect yarn numbering system.

Cut, in wool yarns: The number of 300 yard lengths of yarn per pound. An indirect yarn numbering system.

Cut- as appied to woven fabric: A length of approximately 60 yards in grey.

Cut fabric: Of tubular knits or Fents, made up using patterns and sewn together to form garments.

Cut film in screen making: When producing hand-painted Colour separation designs, smooth surfaced patterns may be produced through screens. Transparent film is used which has a similarly transparent laminate coating and the pattern is traced with a knife on the laminated side. The laminated layer is then removed, without damaging the base film, wherever the pattern should be absent when printing.

Cut length: Staple length.

Cut length in sewing: Cut length in sewing is the total length measurement that includes all seam allowances.

Cut loop, pile: See **Pile, cut loop.**

Cut mark: An indication on the weavers warps of a precise length of material generally a piece length or a fraction of the piece length.

Cut off: **in Zippers,** the measurement of a separate element from the head side to the pocket side of the leg.

Cut-on-cross: Fabric that is cut so that the warp runs horizontally across the garment piece.

Cut-on-fold: Fabric that is doubled, then cut.

Cut pick: See **Broken pick.**

Cut pile carpets: Tufted carpets, the pile of which consists of loops which have been cut open; in contrast to Loop pile carpets.

Cut pile: Which is cut open after the loops were formed in the process of weaving.

Cut pile floor coverings: A floor covering in which the pile is formed of tufts in the form of cut loops.

Cut pile plush: A knitted plush fabric produced by cutting the loops of Circular-knit pile fabrics. The production of this article involves high finishing costs (up to 40% of the final material cost). The following example represents a typical processing route: Slitting of tubular knitgoods – presteaming – pre-cropping – washing – hydro-extraction – drying – heat-setting – dyeing – tumbler drying – cropping – stentering. The total weight loss in pre-cropping and final cropping is 20–25%.

Cut presser, in warp knitting: A presser with an edge castellated so that only selected bearded needles are pressed. The shape of the pressing edge depends up on the pattern.

Cut selvage: Cuts or breaks that occur in the selvedges only. Same as **Broken selvedge or Damaged selvedge.**

Cut selvedge: See **Cut Selvage.**

Cut selvedge suction remover: A device used in machines along with the selvedge cutter device to suck away the cut off edge ouside the gummed area at the selvedge avoiding any more curling of the main fabric. Used on all reroll cutting, transverse cutting, laminating and coating machines, extruders, stenters, printing machines etc.

Cut strip test: in fabric testing, a strip test in which the specimen is cut to the specified testing width.

Cut work: Consists of partly filling with loops and stitches the various spaces cut into linen. It is of ancient origin, evidently coming from Greece. Called also Greek lace and reticella.

Cut-asbestoes: The number of 100 yards length/lb (7000 grains) or 91.4m/ lb (453.6 g)of asbestose yarn.

Cuticle: (Lat. cuticula = skin). In general use a biological term meaning the epidermis or superficial skin. In a textile context the term cuticle is used for the thin surface membrane of the cotton fibre and especially of hair and wool fibres or simply The surface layer of animal hair fibres consisting of flat overlapping scales.

Cutin: (1) (Suterin). A component (3.5–4%) in the primary wall of cotton. It is apparently still awaiting elucidation and cannot yet be defined more precisely.

(2) (Cutin)A working description in research for a substance enveloping the Cuticle of the wool hair which apparently consists of chemically highly resistant Keratin of high density. The terms epicuticle, exocuticle and endocuticle are used as alternatives.

Cut-Make- And Trim see **CMT.** A section of the clothing industry in which a contractor is supplied with materials and designs in order to produce garments for a principal.

Cut-off, In Zipper: The measurement of scoop from the head side to the pocket side of the legs.

Cut-pile carpets: Tufted carpets, the pile of which consists of loops which have been cut open; in contrast to Loop pile carpets.

Cut-pile plush: A knitted plush fabric produced by cutting the loops of Circular-knit pile fabrics. A usual process route is as follows: Slitting of tubular knitgoods – presteaming – pre-cropping –washing – hydro-extraction – drying – heat-setting – dyeing – tumbler drying – cropping – stentering. The total weight loss in pre-cropping and final cropping is 20–25%.

Cuts: Trade term for short length of fabrics, less than a bolt.

Cuttance: Fine heavy and stout silk satin of India, with bright coloured woven stripes and cotton back; used for upholstery.

Cutting: Stout cotton cloth with flower or trailing patterns.

Cutting Thread: Which forms the furrows dividing the rifes of corded fabrics. It is interlaced in plain weave with all the other threads and is stretched if it runs warp ways. Often it is of a different colour than the ribs.

Cuttle: (1) To place fabric in loose traverse folds, usually in open width. (2) To fold finished fabric darn in middle and place it in traverse folds of predetermined length.

Cuttle down: Generally refers to the cooling down of woollen piece goods by laying up in piles.

Cuttling: The folding of the falbric after finishing.

Cutts sizing system: A minimum application process based on the nip-padding principle. The warp is no longer immersed in the sizing bath. Instead, the sizing agent to be used is applied at higher concentration by means of an engraved roller.

CV: Viscose fibre, Standard abbrev. for textile fibres,

CY: Modal fibre, Standard abbrev. for textile fibres.

Cyan: A greenish blue colour Cyan is “officially” the subtractive primary. It is the bluish colour that is used in most printing processes, such as computer inkjet printing. The blue colour that appears in those little coloured squares that are sometimes found near the fold on advertising flyers, or on the bottom or flap of printed packages is cyan, or at least, cyan as approximated by the

printing ink used. In the popular MX reactive dye family, Turquoise MX-G is a very good cyan.

Cyanine dyes: See **Polymethine dyes.**

Cyclamen: The red or pink or reddish-purple colour of the cyclamen flower.

Cycle length, in braided rope: The distance, poarellel to the rope axis, of the strand to make one revolution around the rope.

Cyclone: (1) Or depression (weather). (2) A region of low atmospheric pressure, with its minimum at the centre. North of the equator the winds blow counter-clockwise round the centre; south of the equator, clockwise. Cyclones usually accompany rain and storms, unlike anticyclones. (3) cyclone separator. The use of centrifugal force to separate particles from a gas stream, such as flue gases. The particles are thrown to the outside by the induced motion of the gases and impinge on the surface of the cyclone. They then settle to the base from where they are removed. There are two spirals within a cyclone, a downwardly directed spiral in the outer part and a more rapid inner spiral which is directed upwards to the outlet for the gases. Cyclones may be tangential in which the gases are admitted at a tangent, or axial in which the gases are admitted at the top and a swirling motion imparted by vanes. They may also be used in banks. If used in parallel, high volume passage is allowed, if in series the efficiency of separation is increased although volume passage is not. Efficiency falls off rapidly with particles below about 50um and generally 10um is the minimum particle diameter collected, although in high efficiency cyclones this may be reduced to about 5um. Cyclones are less efficient than electrostatic precipitators or fabric filters, but they are inexpensive, versatile and, being without moving parts, generally trouble free. See **Cyclonic spray scrubber dense medium cyclone, multicyclone, wet cyclone.**

Cyanoethylation of celluloses: Applies particularly to cotton and involves treatment with acrylonitrile. Main reactions:

$$Cell–OH + CH_2=CH–C=N \rightarrow Cell - OCH_2CH_2– CN$$

Cyclone: An installation for dust extraction, e.g. from raising, emerizing, shearing, singeing and other machines which generate dust. The air to be extracted is pumped into large vertical funnels with the aid of powerful fans where it circulates downwards in the form of a vortex. The dust is separated from the dust-laden air by centrifugal forces and friction on the walls of the funnel and spins slowly to the mouth of the cyclone at the bottom from where it is collected in bags for subsequent disposal.

Cylinder dryer: Cross-wound package dryer, in which the packages to be dried are exposed to different drying conditions creeled in segments of a

cylinder or lying on perforated bottoms. Cylinder drying machines are also called cylinder dryer. See **Cylinder drying machines.**

Cylinder drying machine: Probably the cheapest drying machine for drying openwidth farics especially woven fabric. A simple drying machine which uses the contact drying rinciple to dry fabrics in open width. During contact transfer, heat is transferred by contact between the textile material and the heated cylinder surfaces through thermal conduction. The material may be dried by cylinder contact on one or both sides.

Cylinder fulling machine: (milling stock, bumper). Used for the dry removal of hydrocellulose after Carbonizing. Similar in design to the Rotary milling machine.

Cylinder mercerizing: This is a more compact and faster system compared to the Chain mercerizing. Cylinder mercerising does not allow the contraction of the warp because the fabric is drawn in on the cylinders. The contraction of the filling yarns is also prevented thanks to the tension produced by the simultaneous action of the cylinders and of the fabric wetting. Cylinder mercerising machines are also used for flat knits. Also called chainless mercerizing.

Cylinder roller milling machines: The most popular method of Milling involves treatment in a rotary milling machine, in which woollen piece goods are processed in rope form and drawn through the machine between two rollers, where considerable pressure may be exerted by the top roller. The material then passes into a trough or spout (stuffing channel) where it is compacted.

Cylindrical package, cheese: A Yarn package in which the surface of the wound yarn runs parallel to the axis of its supporting package centre or tube (only suitable for cross-wound packages). With single-end conical cylindrical yarn packages, one end of the package is built up conically.

Cylindrical wet scrub extraction: A carpet cleaning method in which (a) a cleaning agent is sprayed on to the carpet, and (b) soil and cleaning agenrt are removed by the macine which feeds water into the counter rotating brushes.

Cypress: Dark grey.

Cyprus: (1) Fine silk gauze, originally from Cyprus; usually dyed black and used as mourning veil. See **Cypress Cloth**.

(2) Gold thread in the Middle ages, having a flat gold strip wound around a silk core.

***Ecmc*, in colour difference evaluation,** A single number defining the total colour difference in CMC units of a trial from a standard.