

Acetate

A manufactured fiber in which the fiber-forming substance is cellulose acetate. Acetate fabrics are fast-drying, wrinkle and shrinkage resistant, crisp or soft in hand depending upon the end use, and luxurious in appearance.

Acrylic

A manufactured fiber in which the fiber-forming substance is any long chain synthetic polymer composed of 85% by weight of acrylonitrile units. Because acrylic fabrics are thermoplastic, fabrics may be heat-set for wrinkle resistance and to provide permanency to pleats. Acrylic fabrics have low moisture absorbency and dry relatively quickly.

Aesthetics

In textiles, properties perceived by touch and sight, such as hand, color, luster, drape and texture of fabrics or garments.

Beam

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.

Bobbin

A cylindrical or slightly tapered barrel, with or without flanges, for holding slubbings, rovings, or yarns.

Boucle

A fabric woven or knit with boucle yarns. Boucle fabric has a looped or knotted surface and is used for sportswear and coats.

Boucle yarn

A novelty yarn with loops which give fabrics a rough appearance. Some boucle yarns have cotton cores with other fibers wound around them. Boucle yarns may be made from wool, cotton, silk, linen, man-made fibers, or combinations of fibers.

Braid

A narrow textile band, used as trimming or binding, formed by plaiting several strands of yarn.

Bright

the term applied to fibers whose luster has not been reduced by physical or chemical means; the opposite of dull or matte.

Broad goods

Woven fabrics 18 inches or more in width.

Cationic dyeable variants

Polymers modified chemically to make them receptive to cationic dyes.

Cellulose

A carbohydrate which is the chief component of the cell walls of plants. Cellulose is found in wood and in cotton, linen, jute, hemp, and all of the bast, leaf and stem fibers. It is the basic raw material in the manufacture of rayon, acetate, and triacetate fibers.

Cellulosic fiber

A fiber composed of or derived from cellulose.

Cheese

A cylindrical package of yarn wound on a flangeless tube.

Chenille

A yarn with a fuzzy pile protruding from all sides, cut from a woven chenille weft fabric. Chenille yarns are made from all fibers, and they are used as filling in fabrics and for embroidery, fringes, and tassels.

Chiffon

A plain-weave, lightweight, sheer, transparent fabric made from fine, highly twisted yarns.

Coalesced Filaments

Filaments stuck together by design or accident during the extrusion process.

Combination Yarn

A plied yarn composed of two or more yarns which vary in fiber composition, content, and/or twist level; or a plied yarn composed of both filament yarn and spun yarn.

Comfort Stretch

A measure of stretch level in stretch woven fabrics.

Commercial Moisture Regain

An arbitrary value adopted as the moisture regain to be used in calculating the commercial or legal weight of a fiber shipment.

Commercial Weight

1. In natural fibers, the dry weight of fibers or yarns plus the commercial moisture regain.
2. In man-made fibers, the dry weight of staple spun yarns, or filament yarns after scouring, by prescribed methods, plus the commercial moisture regain.

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.

Cone

A conical package of yarn, usually wound on a disposable paper core.

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.

Core-Spun Yarn

A yarn made by twisting fibers around a filament or a previously spun yarn, thus concealing the core. Core yarns are used in sewing thread, blankets, and socks and to obtain novelty effects in fabrics.

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 tows in man-made staple processing, especially polyester.

Crepe

A lightweight fabric characterized by a crinkling surface obtained by the use of:

- (1) hard-twist filling yarns,
- (2) chemical treatment,
- (3) crepe weaves, and
- (4) embossing.

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.

Cotton Fiber

A unicellular, natural fiber composed of almost pure cellulose. As taken from plants, the fiber is found in lengths of 3/8 to 2 inches. For marketing, the fibers are graded and classed for length, strength, and color.

Cross Section

The shape of an individual filament when cut at right angles to its axis. Normal shapes for man-made fibers vary, e.g., round, serrated or crenular and bean shaped. The shapes of man-made fibers may be modified by changing the shape of the holes in the spinneret. Cross sectional variants are produced intentionally in a wide variety of shapes for different physical effects such as change in luster or hand, improved resistance to soiling, etc. Examples are trilobal and other multilobal shapes.

Decitex

One tenth of a tex.

Degradation

The loss of desirable physical properties by a textile material as a result of some process or physical/chemical phenomenon.

Denier

A weight-per-unit-length measure of any linear material.

Yarn Denier

The denier of a filament yarn. It is the product of the denier per filament and the number of filaments in the yarn.

Drawing

The hot or cold stretching of continuous filament yarn or tow to align and arrange the crystalline structure of the molecules in order to achieve improved tensile properties.

Doff

A set of full bobbins produced by one machine (a roving frame, spinning frame, or a man-made filament-yarn extrusion machine).

Dull

A term applied to man-made fibers that have been chemically or physically modified to reduce their normal luster. Matte; opposite to bright; low in luster.

Dyeing

A process of coloring fibers, yarn, or fabrics with either natural or synthetic dyes. Some of the major dyeing processes are described below.

Spun Dyed

A term to describe a man-made fiber (yarn, staple, or tow) which has been colored by the introduction of pigments or insoluble dyes into the polymer melt or spinning solution prior to extrusion. Usually, the colors are fast to most destructive agents.

Yarn Dyeing

The dyeing of yarn before the fabric is woven or knit. Yarn can be dyed in the form of skeins, muffs, packages, cheeses, cakes, chain-warps, and beams.

Basic Dyes

A class of positive-ion carrying dyes known for their brilliant hues. Basic dyes are composed of large-molecule, water-soluble salts which have a direct affinity for wool and silk and can be applied to cotton with a mordant. The fastness of basic dyes on these fibers is very poor. Basic dyes are also used on basic-dyeable acrylics, modacrylics, and polyesters, on which they exhibit reasonably good fastness.

Ease-Of-Care

A term used to characterize fabrics that can be restored to their original appearance after laundering with a minimum of ironing or other restoration. An ease-of-care fabric generally wrinkles only slightly upon laundering.

Elasticity

The ability of a strained material to recover its original size and shape immediately after removal of the stress that causes deformation.

Elongation

The deformation in the direction of load caused by a tensile force. Elongation is measured in: (1) units of length (e.g., centimeters, inches), or (2) calculated as a percentage of the original specimen length. Elongation may be measured at any specified load or at the breaking load.

End

1. An individual warp yarn. A warp is composed of a number of ends.
2. An individual sliver, slubbing, roving, yarn, thread, or cord.
3. A short length or remnant of fabric.

Ethylene

A petroleum derivative, C₂H₄, which is the raw material for polyethylene.

Faille

A soft, slightly glossy woven fabric made of silk, rayon, cotton, wool, or man-made fibers of combinations of these fibers and having a light, flat crossgrain rib or cord made by using heavier yarns in the filling than in the warp.

Filament

A fiber of an indefinite or extreme length such as found naturally in silk. Man-made fibers are extruded into filaments which are converted into filament yarn, staple, or tow.

Filament Yarn

A yarn composed of continuous filaments assembled with or without twist.

Filling

In a woven fabric, the yarn running from selvage to selvage at right angles to the warp. Each crosswise length is called a pick. In the weaving process, the filling yarn is carried by the shuttle or other type of yarn carrier.

Finishing

All the processes through which fabric is passed after bleaching, dyeing, or printing in preparation for the market or use. Finishing includes such operations as heat-setting, napping, embossing, pressing, calendaring, and the application of chemicals which change the character of the fabric. The term finishing is also sometimes used to refer collectively to all processing operations above, including bleaching, dyeing, printing, etc.

Flame Retardant

A chemical compound which can be incorporated into a textile fiber during manufacture or applied to a fiber, fabric, or other textile item during processing for use to reduce its flammability.

Glazing

A finishing process which produces a smooth, highly polished, or lustrous surface on a fabric such as chintz.

Greige Fabric

A fabric just off the loom or knitting machine, i.e., in an unfinished state.

Hydrophilic

Having strong affinity for or the ability to absorb water.

Hydrophobic

Lacking affinity for or the ability to absorb water.

Jacquard

A system of weaving which utilizes a highly versatile pattern mechanism to permit the production of large, intricate designs.

Jersey

1. A circular knit or flat-knit fabric made with a plain stitch.
2. A tricot fabric made with a simple stitch, characterized by excellent drape and wrinkle recovery properties.

Knit Fabric

A structure produced by interlooping one or more ends of yarn or comparable material.

Knitting

A method of constructing fabric by interlocking series of loops of one or more yarns. The two major classes of knitting are warp knitting and weft knitting, as follows:

1. Warp Knitting

A type of knitting in which the yarns generally run lengthwise in the fabric. The yarns are prepared as warp on beams with one or more for each needle. Examples of this type of knitting are tricot, milanese, and raschel knitting.

Milanese Knitting

A type of run-resistant warp knitting with a diagonal rib effect using several sets of yarns.

Raschel Knitting

A versatile type of warp knitting made in plain and jacquard patterns; the latter can be made with intricate eyelet and lacy patterns and is often used for underwear fabrics. Raschel fabrics are coarser than other warp knit fabrics, but a wide range of fabrics can be made. Raschel knitting machines have one or two sets of latch needles and up to thirty sets of guides.

Tricot Knitting

A run-resistant type of warp knitting in which either single or double sets of yarn are circular and flat knitting.

2. Weft Knitting

A common type of knitting, in which done continuous thread runs crosswise in the fabric making all of the loops in one course. Weft knitting types are circular and flat knitting.

Circular Knitting

The fabric is produced on the knitting machine in the form of a tube, the threads running continuously around the fabric.

Flat Knitting

The fabric is produced on the knitting machine in flat form, the threads alternating back and forth across the fabric. The fabric can be given shape in the knitting process by increasing or decreasing loops. Full-fashioned garments are made on a flat knitting machine.

Aesthetics

In textiles, properties perceived by touch and sight, such as hand, color, luster, drape and texture of fabrics or garments.

Lace

Ornamental openwork fabric, made in a design by intricate manipulation of the fiber by machine or by hand.

Linen

Cellulosic fibers derived from the stem of the flax plant. Linen is much stronger and more lustrous than cotton.

Long Staple

A long fiber. In reference to cotton, long staple indicates a fiber length of not less than 1 1/8 inches. In reference to wool, the term indicates fiber 3 to 4 inches long suitable for combing.

Loom

A machine for weaving fabric by interlacing a series of vertical, parallel threads (the warp) with the series of horizontal, parallel threads (the filling).

Merge

A group to which fiber production is assigned based on properties and dyeability. All fibers within a merge can be expected to behave uniformly, and for this reason, can be mixed or used interchangeably.

Metric Count

The number of kilometers per kilogram of yarn.

Modulus

The ratio of change in stress to change in strain following the removal of crimp from the material being tested; i.e., the ratio of the stress expressed either in force per unit linear density or force per unit area of the original specimen, and the strain expressed either as a fraction of the original length or as percentage elongation.

Moisture Regain

The percentage of moisture in a textile material brought into equilibrium with a standard atmosphere after partial drying, calculated as a percentage of the moisture-free weight.

Monofilament

Any single filament of a man-made fiber, usually of a denier higher than 15. Instead of a group of filaments being extruded through a spinner to form a yarn, monofilaments may be used for textile uses such as hosiery or for nontextile uses such as bristles

Nap

A fibrous surface given to a cloth when part of the fibers is raised from the basic structure.

Narrow Fabric

Any nonelastic woven fabric, 12 inches or less in width, having a selvage on either side, except ribbon and seam binding.

Natural Fiber

A class name for various genera of fibers (including filaments) of:

- (1) animal,
- (2) mineral,
- (3) vegetable origin

For example:

- (1) silk and wool,
- (2) asbestos, and
- (3) cotton, flax, jute, and ramie.

Novelty Yarn

A yarn produced for a special effect. Novelty yarns are usually uneven in size, varied in color, or modified in appearance by the presence of irregularities deliberately produced during their formation. In singles yarns, the irregularities may be caused by inclusion of knots, loops, curls, slubs, and the like. In plied yarns, the irregularities may be effected by variable delivery of one or more of its components or by twisting together dissimilar singles yarns. Nub and slub yarns are examples of novelty yarns.

Ombre

A color effect which is changeable in shade from light to dark, generally produced by using warp yarns of different tones. Ombre effects may also be produced by printing.

Optical Brightner

A colorless compound which, when applied to fabric, absorbs the ultraviolet rays in light and emits them in the visible spectrum.

Pigment

An insoluble, finely divided substance, such as titanium dioxide, used to deluster or color fibers, yarns, or fabrics.

Pile

1. A fabric effect formed by introducing tufts, loops, or other erect yarns on all or part of the fabric surface. Types are warp, filling, and knotted pile, or loops produced by weaving an extra set of yarns over wires which are then drawn out of the fabric.
2. In carpets, pile refers to the face yarn, as opposed to backing or support yarn. Pile carpets are produced by either tufting or weaving.

Plying

Twisting together two or more single yarns or ply yarns to form, respectively, ply yarn or cord.

Pile

A wood, paper, or plastic support, cylindrical or slightly tapered, with or without a conical base, on which yarn is wound.

Plied Yarn

A yarn formed by twisting together two or more single yarns in one operation.

Ply

1. The number of single yarns twisted together to form a plied yarn, or the number of plied yarns twisted together to form cord.
2. An individual yarn in a plied yarn or cord.
3. One of a number of layers of fabric (ASTM).
4. The number of layers of fabric, as in a shirt collar, or of cord in a tire.

Polyester Fiber

A manufactured fiber in which the fiber-forming substance is any long chain synthetic polymer composed of at least 85% by weight of an ester of dihydric alcohol and terephthalic acid (FTC definition). Fiber forms produced are filament, staple, and tow. Polymerization is accomplished at a high temperature, using a vacuum. The glycol and ester reaction forms a polymer chain, releasing methanol. The filaments are spun in a melt-spinning process, stretched several times their original length, orients the long chain molecules and gives the fiber strength.

Characteristics: Polyester fibers have high strength and are resistant to shrinking and stretching. Fabrics are quick-drying and tend to have wrinkle resistance and crease retention, wet and dry. Polyester is used alone and in blends.

Polyethylene Fiber

A man-made fiber made of polyethylene, usually in monofilament form; although work has been done on continuous filament yarns and staple. Ethylene is polymerized at high pressures and the resulting polymer is melt-spun and cold drawn. It may also be dry-spun from xylene solution.

Characteristics: Polyethylene fibers have a low specific gravity, extremely low moisture regain, the same tensile strength wet and dry, and are resistant to attack by mildew and insects.

Polymer

A high molecular chain-like structure from which man-made fibers are derived, produced by linking together molecular units called monomers.

Print

A fabric with designs applied by means of dyes or pigments used on engraved rollers, blocks, or screens.

Raw Fiber

A textile fiber in its natural state, such as silk "in the gum" and cotton as it comes from the bale.

Ribbon

Narrow fabric made in several widths and a variety of weaves and used as a trimming.

Ring Spinning

A system of spinning using a ring-and-traveler take-up wherein the drafting of the roving and the twisting and winding of the yarn onto the bobbin proceed simultaneously and continuously.

Rayon Fibre

A manufactured fiber composed of regenerated cellulose, as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15% of the hydrogens of the hydroxyl groups (FTC definition). Rayon fibers include yarns and fibers made by the viscose process, the cuprammonium process, and the now obsolete nitrocellulose and saponified acetate processes. Generally, in the manufacture of rayon, cellulose derived from wood pulp, cotton linters, or other vegetable matter is dissolved into a viscose spinning solution. The solution is extruded into an acid-salt coagulating bath and drawn into continuous filaments. Groups of these filaments may be made in the form of yarns or cut into staple.

Characteristics: Rayon yarns are made in a wide range of types in regard to size, physical characteristics, strength, elongation, luster, handle, suppleness, etc. They may be white or solution dyed. Strength is regulated by the process itself and the structure of the yarn. Luster is reduced by including such materials, such as titanium dioxide pigments, in the fiber when it is extruded. The suppleness of the yarn is controlled by the number of filaments in the yarn, the denier or gauge of the individual filaments or fibers, and the fiber cross-section.

Section Beam

A large, flanged roll upon which warp yarn is wound at the beam warper in preparation for slashing.

Selvage or Selvedge

The narrow edge of woven fabric that runs parallel to the warp. It is made with stronger yarns in a tighter construction than the body of the fabric to prevent raveling. A fast selvage encloses all or part of the picks, and a selvage is not fast when the filling threads are cut at the fabric edge after every pick.

Singles Yarn

The simplest strand of textile material suitable for operations such as weaving and knitting. A single yarn may be formed from fibers with more or less twist; from filaments with or without twist; from narrow strips of material such as paper, cellophane, or metal foil; or from monofilaments. When twist is present, it is all in the same direction.

Slashing

A process of sizing warp yarns on a slasher.

Characteristics: Spandex is lighter in weight, more durable, and more supple than conventional elastic threads and has between two and three times their restraining power. Spandex is extruded in a multiplicity of fine filaments which immediately form a monofilament.

End Uses: Spandex is used in foundation garments, bathing suits, hose, and webbings.

Spinneret

A metal disc containing numerous minute holes used in yarn extrusion. The spinning solution or melted polymer is forced through the holes to form the yarn filaments.

Spinning

The process or processes used in the production of single yarns.

Spun Yarn

1. A yarn consisting of staple fibers usually bound together by twist.
2. A melt-spun fiber before it is drawn.

Stress-Strain Curve

A graphical representation, showing the relationship between the change in dimension (in the direction of the applied stress) of the specimen from the application of an external stress, and the magnitude of that stress. In tension tests of textile materials, the stress may be expressed either in:

- (1) units of force per unit cross-sectional area, or in
- (2) force per unit linear density of the original specimen, and the strain may be expressed either as a fraction or as a percentage of the original specimen length.

Tenacity

The tensile stress when expressed as force per unit linear density of the unstrained specimen (e.g., grams per tex or grams per denier).

Tex

1. A unit for expressing linear density, equal to the weight in grams of 1 kilometer of yarn, filament, fiber, or other textile strand.
2. The system of yarn numbering based on the use of tex units.

Textured

An adjective used to describe continuous filament man-made yarns (and woven and knit fabrics made therefrom) which have been crimped or have had random loops imparted, or which have been otherwise modified to create a different surface texture.

Textured Yarns

Yarns which develop stretch and bulk on subsequent processing. When woven or knitted into fabric, the cover, hand, and other aesthetics of the finished fabric better resemble the properties of a fabric constructed from spun yarn.

Texturing

The process of crimping, imparting random loops, or otherwise modifying continuous filament yarn to increase cover, resilience, abrasion resistance, warmth, insulation, and moisture absorption or to provide a different surface texture. Texturing methods can be placed roughly into six groups.

Thread

A slender, strong strand or cord, especially one designed for sewing or other needlework. Most threads are made by plying and twisting yarns. A wide variety of thread types is in use today, e.g., spun cotton and spun polyester, core-spun cotton with a polyester filament core, polyester or nylon filaments (often bonded), and monofilament threads. A general term for yarns used in weaving and knitting, as in "thread count" and "warp threads".

Throwing

The operation of doubling or twisting silk or man-made filament yarns.

Tricot

A generic term for the most common type of warp-knit fabric. It has fine wales on the face and coursewise ribs on the back. It can be made in a plain jersey construction or in meshes, stripes, and many other designs. Tricot is usually made of nylon, acetate, polyester, or rayon.

Tube

A cylindrical holder or bobbin used as a core for a cylindrical yarn package. A cylindrical yarn package.

Triacetate Fiber

A man-made fiber produced from cellulose triacetate in the forms of filament yarn, staple, and tow. Cellulose triacetate fiber differs from acetate fiber in that during its manufacture the cellulose is completely acetylated whereas regular acetate, which is diacetate, is only partially acetylated. Fabrics of triacetate have higher heat resistance than acetate fabrics and may be safely ironed at higher temperatures. Triacetate fabrics which have been properly heat-set (usually after dyeing) have improved ease-of-care characteristics because of a change in the crystalline structure of the fiber.

Traverse Length

The lateral distance between the points of reversal of the wind on a yarn package.

Tricot Beam

A metal flanged beam, commonly 42 inches in width, on which yarn is wound for use as a supply for the tricot machine.

Twist

The number of turns about its axis per unit of length of a yarn or other textile strand. Twist may be expressed as turns per inch (tpi), turns per meter (tpm), or turns per centimeter (tpcm). The direction of twist in yarns and other textile strands is indicated by the capital letters S and Z. The process of combining filaments into yarn by twisting them together or combining two or more parallel single yarns (spun or filament) into plied yarns or cords. A very high level of twist is added to single or plied yarns to make crepe yarns. The process of adding twist to a filament yarn to hold the filaments together for ease in subsequent textile processing, etc.

Uptwisting

The process of twisting yarn on the uptwister. The yarn to be twisted, which has been wound on a balanced support package, is placed on a revolving spindle. The yarn from the revolving supply package is fed upward through a gathering eye or guide, over a stop motion and a tension bar or bars, through a traversing guide, and onto the revolving collecting package.

Velour

Generally, a soft, closely woven fabric with a short, thick pile, weighing about 10 to 20 ounces per yard and made in a plain or satin weave. Velour is usually made of cotton or wool, or with a cotton warp in wool, silk, or mohair velour. It is also made in blends of spun man-made fiber and wool. Velours are used for coats, draperies, upholstery, powder puffs, and other pile items. A felt with velvet-like texture used for men's and women's hats.

Velvet Fabric

A warp-pile woven fabric with short, dense cut pile which produces a rich fabric appearance and soft texture. Two methods are used for weaving velvets. In the double-cloth method, two fabrics are woven face to face with the pile ends interlocking each. A reciprocating knife cuts through these pile ends to produce two separate pieces of velvet. In the second method, pile ends are lifted over cutting wires which are inserted with the filling and which are withdrawn to cut the pile. Velvet is produced in a wide range of constructions and types. It was originally made of silk but now also of cotton or man-made fiber; the latter are sometimes washable.

Viscose Rayon

One type of rayon. It is produced in far greater quantity than cuprammonium rayon, the other commercial type.

Warp

1. The set of yarn in all woven fabrics, that runs lengthwise and parallel to the selvage and is interwoven with the filling.
2. The sheet of yarns wound together on a beam for the purpose of weaving or warp knitting.

Warp Be

A large pool or flanged cylinder around which the warp threads, or ends, are wound in a uniform and parallel arrangement.

Warping

The operation of winding the warp yarn onto a beam in preparation for weaving or warp knitting. Also called beaming.

Warp-Knit Fabric

A fabric that is knit with the yarns running lengthwise, e.g., tricot, milanese, and raschel.

Weaving

The method or process of interlacing two yarns of similar materials so that they cross each other at right angles to produce woven fabric. The warp yarns, or ends, run lengthwise in the fabric, and the filling threads (weft), or picks, run from side to side. Weaving may be done on a power or hand loom or by several hand methods.

Webbing

Strong, narrow fabric, closely woven in a variety of weaves and principally used for belts and straps which will have to withstand strain (e.g., automobile seat belts, reinforcement of upholstery, suspenders, etc.). Elastic webbing is made with spandex or rubber yarns in part of the warp or filling, or both.