Conversion, process for producing → staple fibers direct from → tow by various processes (stretch-breaking, cutting, crushing). The product is a → sliver with a spinnable staple diagram.

References:

K. Gilhaus, CTI 42/94 (1992) 278–79
K. Tautenhahn, CTI 42/94 (1992) 279–8
Y. Trottein, CFI 46 (1996) 212–214
K. Gilhaus, CFI 49 (1999) 263–265

Cop, slightly conical yarn package (generally a cardboard tube) on which yarns are taper wound, and then taken off "overend" in subsequent processing.

CoPA, abbreviation for copolyamide fibers, → polyamide fibers, → copolymer fibers.

CoPES, abbreviation for copolyester fibers. → Polyester fibers.

Copolyamide, → polyamide fibers.

Copolyester, → polyester fibers.

Copolymer fibers, are the result of the joint → polymerization of different monomers in order to obtain specifically targeted fiber properties (e.g. dye affinity, antistatic property, thermostability etc.), including modacrylic fibers, modified chlorofibers and copolyester fibers, but not → bicomponent fibers.

Cord, tire cord technical filament yarns are used as cabled yarns made from high-tenacity man-made fibers (polyamides, polyester, viscose, aramides) or steel for woven fabric interlinings (tire casings, radial-ply tires) and also for heavyweight woven fabrics (conveyor belts, driving belts).

Core yarns, yarns with the most varied effects and potential end-uses are produced by wrapping an elastic synthetic yarn (core-spun yarn, core/cover yarn) generally of → elastane fibers (spandex), with a cotton or man-made fiber yarn. Textured yarns can also be used as core yarns.

Cotton linters, short cotton seed hairs unsuitable for spinning into cotton yarns. Can be used for the production of → acetate and → cupro yarns, since almost pure cellulose (98.5%- 99% alpha-cellulose). → Cellulose.

Cotton type, → B-type.

Count, indication of the titer of yarns and ply yarns, a distinction being drawn between length count (Nm, Ne) and weight count (tex). The (earlier) metric count (Nm) indicates a specific length of yarn in grams. Nm 34 for example means that a 34 m length of the yarn so described weighs 1 g. With Nm 120, 120 m weighs 1 g. That is to say, the higher the yarn count, the finer the yarn. English cotton count (Ne): length in hanks (768 m)/lb (453.6 g). With currently usual metric weight count, yarn count is produced in accordance with the → tex-system from the weight in g/1000 m (tex) or dimensions derived therefrom (dtex, ktex). See conversion table in the annex (p. 269).

Covered yarn, type of composite yarn made by wrapping a filament or spun yarn around a core of bundled fibers or other yarn. The core can also be an elastic yarn such as elastane or spandex.

Crease resistance, resistance of textiles to creasing (dry and wet crease resistance), temperature, air humidity, loading and recovery time having an important effect.

Crease resistant finish, → resin finishing for improving → crease recovery.

Creasing of textiles

Fiber	Creasing	
	in dry condition	in hot condition 95 °C
Polyamide	low	high
Polypropylene	high	low
Polyester	low	high
Chlorofibers	low	–
Acrylic fibers	high	–
Silk	medium	–
Wool	medium	–
Triacetate	medium	medium
Acetate	high	medium
Viscose	high	high
Lyocell	high	high
Cotton	high	high
Linen	high	high

Table: Crease resistance

Creases, → hydrophilic natural or cellulosic man-made fiber textiles have a tendency to crease to a greater or lesser extent. Creases can however be largely avoided by suitable yarn or fabric constructions, and particularly by finishing (→ resin finishing). Knitted fabrics are especially immune to creasing on account of their loop construction. Synthetic man-made fibers are very little prone to creasing because of their special structure. Textiles which consist entirely or predominantly of synthetic fibers are therefore generally very shape retentive. In the case of blended fabrics produced from swelling fibers and synthetic fibers too, creases quickly drop out after the fabrics have been subjected to heavy mechanical loading as long as the synthetic proportion is predominant.

Crimp, is fiber behavior in one plane (two-dimensional) or in space (three-dimensional), obtained in the case of → staple fibers (specially for → wool types) by special spinning processes, the mechanical after-treatment of tow (stuffer box crimping) or by means of bicomponent structure. Crimped staple fibers provide a loftier yarn of lighter weight and higher heat retention capacity in textiles. → Textured yarns.

Crimp amplitude, the height of displacement of the fiber from its uncrimped condition.

Crimper, crimping machine for man-made fiber tow for the subsequent production of staple fibers and → tow. Stuffer box → texturing.

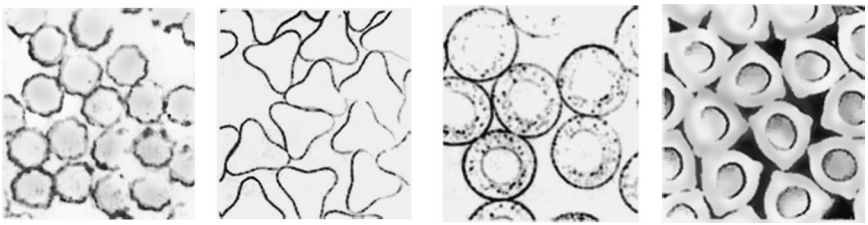
Crimp frequency, the crimp level, or number of crimps per cm or inch in yarn or tow.

Crincle process, → texturing (knit-de knit process, KDK texturing process).

Cross-dyeing, simultaneous processing of man-made fibers with different dye affinity for the production of multicolor effects in piece dyeing.

Crosslinking, processes have been developed for polyamide and viscose fibers in order to increase fiber strength still further, for example by crosslinking the molecule chains.

Cross section, in → wet or → dry spinning processes, man-made fibers are mostly spun into filaments through round → spinneret holes, the fiber cross section assuming various shapes on solidifying (bean-shaped, kidney shaped, serrated etc.). The cross sectional shape is therefore a characteristic of the production process employed at any one time. In →



Cross section; polyamide fiber cross sections

Relationship between cross section and fiber surface and different wear properties

	Cross sectional shape		Cross sectional area		Fiber surface	
	round	profiled	solid	hollow	smooth	structured
						
Visual properties						
Lustre	weaker	stronger	stronger	weaker	stronger	weaker
Transparency	higher	lower	higher	lower	higher	lower
Covering power	lower	higher	lower	higher	lower	higher
Perceived color	darker	brighter	brighter	darker	brighter	darker
Dye consumption	lower	higher	lower	higher	lower	higher
Dirt visibility	higher	lower	higher	lower	higher	lower
Particle adhesion	weaker	stronger	–	–	stronger	weaker
Tactile properties						
Handle	softer	harder	softer	harder	softer	harder
Friction	smoother	duller	–	–	smoother	duller
Flexural strength	lower	higher	lower	higher	–	–
Loftiness/bulk	lower	higher	lower	higher	–	–
Physiological properties						
Fiber surface	smaller	larger	smaller	larger	smaller	larger
Moisture conductivity	smaller	larger	smaller	larger	smaller	larger
Heat insulation	lower	higher	lower	higher	–	–

Table: Cross section
Source: P. Latzke, H. Hesse, Textile Fasern

melt spinning (polyamide, polyester fibers, PP fibers), the fiber cross section can be modified by employing different profiled spinneret holes depending on the fiber end-use, → profiled fibers. Fiber cross section also changes to some extent in further processing (e.g. → texturing). Cross sectional area and fiber surface also have a considerable effect on visual properties (e.g. lustre, perceived color), textile properties (e.g. handle) and physiological properties (e.g. moisture conductivity).

Reference:

P. M. Latzke/ R. Hesse, Textile Fasern, Rasterelektronenmikroskopie der Chemie- und Naturfasern, Deutscher Fachverlag, Frankfurt/M., 1988

Cross-wound bobbin, **X-bobbin**, type of package for yarns which are wound on a tube (bobbin) with a specific yarn crossing

angle. Distinction is drawn (depending on end-use) between conical, biconical and cylindrical cross-wound bobbin forms.

Crystalline, grid morphological structure of a polymer. → Drawing, → semi-crystallinity.

Crystallizer, is necessary before drying and before → SSP (solid-state polycondensation) for → polyester to prevent the pellets from sticking together.

C/S-type, → bicomponent fibers (C= core, S= sheat).

CTA, fiber code (BISFA) for → triacetate.

Cuoxam, solution of copper oxide in aqueous ammonia, which is deep blue due to its copper content. Cuoxam is used for dissolving cellulose in the production of spinning solution for the production of → cupro yarns.

CUP, abbreviation of → cupro yarns.

Cupra, code (USA) for → cupro fibers.

Cuprammonium process, kier boiled and bleached → cotton linters or pure cellulose (→ alpha fiber) are dissolved in a mixture of copper oxide and ammonia (Schweizer's reagent) (→ Cuoxam). The viscous and (due to its copper content) deep blue mass is pressed through relatively large spinneret holes in a spinning funnel, through which weak alkaline water is constantly flowing. The downward flowing water stretches the spinning solution filaments emerging from the spinnerets, while they harden to about one hundreth of the spinneret diameter, giving the individual filaments their fine titer. The resultant → cupro yarns and → cupro staple fibers are composed – like cotton – of cellulose. → Cellulosic man-made fibers.

Reference:

Z. A. Rogowin, Chemiefasern, Thieme Verlag, Stuttgart, 1982

Cupro, code (BISFA) of cupro fibers (filament yarns and staple fibers) in accordance with the → Textile Labelling Act. Currently produced only in Japan and Italy (still produced in Germany by Bayer too in the 1960's and up to the beginning of the 1990's in Pirna/East Germany). 2007 world production: 20000 tons. → Cupro yarns, → cupro staple fibers.

Cupro fibers (Cupra, **US)**, → cupro yarns, → cupro staple fibers.

Cupro staple fibers, staple fibers spun by the ammonium copper oxide process (→ Cuprammonium process) for cotton, woollen and carpet yarn spinning; were also produced in spundyed form, and processed both alone and in combination with natural fibers and synthetic staple fibers. Almost of no market importance today (world production only 500 tons).

Cupro yarns (CUP), fine filament yarns similar in appearance to silk (0.7–1.9 dtex), which are spun by the ammonium copper oxide process, → cuprammonium process. Properties: discreet silk shimmer; also matt spun and spun-dyed. Easy to wash; woven fabrics are distinguished by an easy, flowing drape.

References:

Z. A. Rogowin, Chemiefasern, Thieme Verlag, Stuttgart, 1982
CTI 40/92 (1990) 1024
W. Albrecht/B. Wulfhorst/H. Külter, Fiber Table Cellulose regenerated fibers, 1st edition, 1990

Curling, shortening of a yarn due to curl formation (especially in → texturing).

Cutter, device for cutting continuous filament → tow into → staple fibers of con-