



VKR TEX - Tutorials

Manufacture of All Kinds of Auto loom Fabrics and Natural Dye Fabrics.

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Textile



Sunday textile market on the sidewalks of Karachi, Pakistan.

A **textile** is a flexible material comprised of a network of natural or artificial fibers often referred to as thread or yarn. Yarn is produced by spinning raw wool fibers, linen, cotton, or other material on a spinning wheel to produce long strands known as yarn. Textiles are formed by weaving, knitting, crocheting, knotting, or pressing fibers together (felt).

Terminology

The words *fabric* and *cloth* are commonly used in textile assembly trades (such as tailoring and dressmaking) as synonyms for *textile*. However, there are subtle differences in these terms. *Textile* refers to any material made of interlacing fibres. *Fabric* refers to any material made through weaving, knitting, crocheting, or bonding. *Cloth* refers to a finished piece of fabric that can be used for a purpose such as covering a bed.

History



Late antique textile, Egyptian, now in the Dumbarton Oaks collection.

The production of textiles is an important craft, whose speed and scale of production has been altered almost beyond recognition by industrialization and the introduction of modern manufacturing techniques. However, for the main types of textiles, plain weave, twill or satin weave there is little difference between the ancient and modern methods.

Incan Indians have been crafting quipus (or *kipus*) made of fibers either from a protein, such as spun and plied thread like wool or hair from camelids such as alpacas, llamas and camels or from a cellulose like cotton for thousands of years. Khipus are a series of knots along pieces of string. They have been believed to only have acted as a form of accounting, although new evidence conducted by Harvard professor, Gary Urton, indicates there may be more to the khipu than just numbers. Preservation of khipus found in museum and archive collections follow general textile preservation principles and practice.

Uses

Textiles have an assortment of uses, the most common of which are for clothing and containers such as bags and baskets. In the household, they are used in carpeting, upholstered furnishings, window shades, towels, covering for tables, beds, and other flat surfaces, and in art. In the workplace, they are used in industrial and scientific processes such as filtering. Miscellaneous uses include flags, backpack, tents, nets, cleaning devices, such as handkerchiefs; transportation devices such as balloons, kites, sails, and parachutes; strengthening in composite materials such as fibre glass and industrial geotextiles, and smaller cloths are used in washing by "soaping up" the cloth and washing with it rather than using just soap.

Textiles used for industrial purposes, and chosen for characteristics other than their appearance, are commonly referred to as *technical textiles*. Technical textiles include textile structures for automotive applications, medical textiles (e.g. implants), geotextiles (reinforcement of embankments), agrotextiles (textiles for crop protection), protective clothing (e.g. against heat and radiation for fire fighter clothing, against molten metals for welders, stab protection, and bullet proof vests. In all these applications stringent performance requirements must be met.

Fashion and textile designs

Fashion designers commonly rely on textile designs to set their fashion collections apart from others. Marisol Deluna, Nicole Miller, Lilly Pulitzer, the late Gianni Versace and Emilio Pucci can be easily recognized by their signature print driven designs.

Sources and types



Traditional Romanian fabric

Textiles can be made from many materials. These materials come from four main sources: animal, plant, mineral, and synthetic. In the past, all textiles were made from natural fibres, including plant, animal, and mineral sources. In the 20th century, these were supplemented by artificial fibres made from petroleum.

Textiles are made in various strengths and degrees of durability, from the finest gossamer to the sturdiest canvas. The relative thickness of fibres in cloth is measured in deniers. Microfiber refers to fibers made of strands thinner than one denier.

Animal textiles

Animal textiles are commonly made from hair or fur.

Wool refers to the hair of the domestic goat or sheep, which is distinguished from other types of animal hair in that the individual strands are coated with scales and tightly crimped, and the wool as a whole is coated with an oil known as lanolin, which is waterproof and dirtproof. Woollen refers to a bulkier yarn produced from carded, non-parallel fibre, while worsted refers to a finer yarn which is spun from longer fibres which have been combed to be parallel. Wool is commonly used for warm clothing. Cashmere, the hair of the Indian cashmere goat, and mohair, the hair of the North African angora goat, are types of wool known for their softness.

Other animal textiles which are made from hair or fur are alpaca wool, vicuña wool, llama wool, and camel hair, generally used in the production of coats, jackets, ponchos, blankets, and other warm coverings. Angora refers to the long, thick, soft hair of the angora rabbit.

Wadmal is a coarse cloth made of wool, produced in Scandinavia, mostly 1000~1500CE.

Silk is an animal textile made from the fibers of the cocoon of the Chinese silkworm. This is spun into a smooth, shiny fabric prized for its sleek texture.

Plant textiles

Grass, rush, hemp, and sisal are all used in making rope. In the first two, the entire plant is used for this purpose, while in the last two, only fibres from the plant are utilized. Coir (coconut fiber) is used in making twine, and also in floormats, doormats, brushes, mattresses, floor tiles, and sacking.

Straw and bamboo are both used to make hats. Straw, a dried form of grass, is also used for stuffing, as is kapok.

Fibres from pulpwood trees, cotton, rice, hemp, and nettle are used in making paper.

Cotton, flax, jute, hemp and modal are all used in clothing. Piña (pineapple fiber) and ramie are also fibres used in clothing, generally with a blend of other fabrics such as cotton.

Acetate is used to increase the shininess of certain fabrics such as silks, velvets, and taffetas.

Seaweed is used in the production of textiles. A water-soluble fiber known as alginate is produced and is used as a holding fiber; when the cloth is finished, the alginate is dissolved, leaving an open area

Mineral textiles

Asbestos and basalt fiber are used for vinyl tiles, sheeting, and adhesives, "transite" panels and siding, acoustical ceilings, stage curtains, and fire blankets.

Glass Fiber is used in the production of spacesuits, ironing board and mattress covers, ropes and cables, reinforcement fiber for composite materials, insect netting, flame-retardant and protective fabric, soundproof, fireproof, and insulating fibers.

Metal fiber, metal foil, and metal wire have a variety of uses, including the production of cloth-of-gold and jewelry. Hardware cloth is a coarse weave of steel wire, used in construction.

Synthetic textiles



A variety of contemporary fabrics. From the left: evenweave cotton, velvet, printed cotton, calico, felt, satin, silk, hessian, polycotton.

All synthetic textiles are used primarily in the production of clothing.

Polyester fiber is used in all types of clothing, either alone or blended with fibres such as cotton.

Aramid fiber (e.g. Twaron) is used for flame-retardant clothing, cut-protection, and armor.

Acrylic is a fibre used to imitate wools, including cashmere, and is often used in replacement of them.

Nylon is a fibre used to imitate silk; it is used in the production of pantyhose. Thicker nylon fibers are used in rope and outdoor clothing.

Spandex (trade name *Lycra*) is a polyurethane fibre that stretches easily and can be made tight-fitting without impeding movement. It is used to make activewear, bras, and swimsuits.

Olefin fiber is a fiber used in activewear, linings, and warm clothing. Olefins are hydrophobic, allowing them to dry quickly. A sintered felt of olefin fibers is sold under the trade name Tyvek.

Ingeo is a polylactide fiber blended with other fibres such as cotton and used in clothing. It is more hydrophilic than most other synthetics, allowing it to wick away perspiration.

Lurex is a metallic fiber used in clothing embellishment.

Production methods



Brilliantly dyed traditional woven textiles of Guatemala, and woman weaving on a backstrap loom.

Weaving is a textile production method which involves interlacing a set of longer threads (called the warp) with a set of crossing threads (called the weft). This is done on a frame or machine known as a loom, of which there are a number of types. Some weaving is still done by hand, but the vast majority is mechanised.

Knitting and crocheting involve interlacing loops of yarn, which are formed either on a knitting needle or on a crochet hook, together in a line. The two processes are different in that knitting has several active loops at one time, on the knitting needle waiting to interlock with another loop, while crocheting never has more than one active loop on the needle.

Braiding or plaiting involves twisting threads together into cloth. Knotting involves tying threads together and is used in making macrame.

Lace is made by interlocking threads together independently, using a backing and any of the methods described above, to create a fine fabric with open holes in the work. Lace can be made by either hand or machine.

Carpets, rugs, velvet, velour, and velveteen, are made by interlacing a secondary yarn through woven cloth, creating a tufted layer known as a nap or pile.

Felting involves pressing a mat of fibers together, and working them together until they become tangled. A liquid, such as soapy water, is usually added to lubricate the fibers, and to open up the microscopic scales on strands of wool.

Treatments



Woven tartan of Clan Campbell, Scotland.

Textiles are often dyed, with fabrics available in almost every colour. Coloured designs in textiles can be created by weaving together fibres of different colours (tartan or Uzbek Ikat), adding coloured stitches to finished fabric (embroidery), creating patterns by resist dyeing methods, tying off areas of cloth and dyeing the rest (tie-dye), or drawing wax designs on cloth and dyeing in between them (batik), or using various printing processes on finished fabric. Woodblock printing, still used in India and elsewhere today, is the oldest of these dating back to at least 220CE in China.

Textiles are also sometimes bleached. In this process, the original colour of the textile is removed by chemicals or exposure to sunlight, turning the textile pale or white.

Textiles are sometimes finished by starching, which makes the fabric stiff and less prone to wrinkles, or by waterproofing, which makes the fabric slick and impervious to water or other liquids. Since the 1990s, finishing agents have been used to strengthen fabrics and make them wrinkle free.