

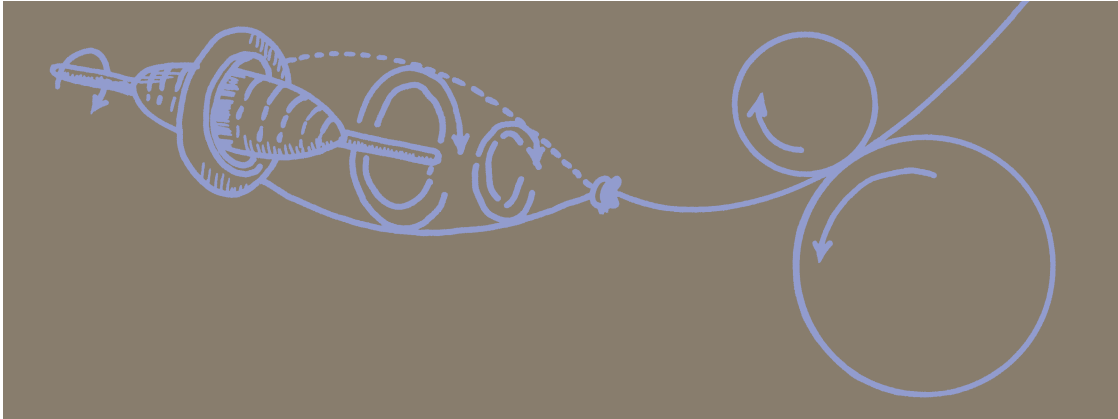
PROCESSING WOOL *Fact Sheet*

Spinning

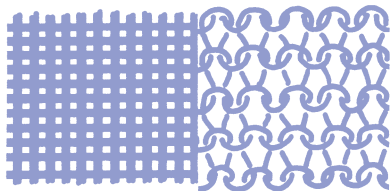
Weaving or knitting

Fulling & finishing

Chemical finishes

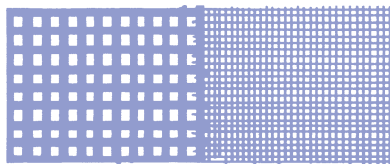


SPINNING Roving for both woolen and worsted yarns goes through the spinning process for yarn formation, making it suitable for weaving or knitting. After spools of roving are in place on the spinning frame, the ends of the roving are drawn through small rollers to extend the wool fibers still further. Then the spinning machines twist and retwist the roving into yarns of a wide variety of qualities including strength, firmness, size and ply.



WEAVING OR KNITTING Weaving produces cloth by interlacing two sets of yarn at right angles. Yarns running lengthwise in the loom are the “warp,” while yarns running crosswise form the filling or “weft.” As each warp yarn passes through the loom, it is raised and lowered by a wire eyelet through which it is threaded. As yarns are raised and lowered by cycles of the loom, a weft yarn is carried by a shuttle, (rapier or air jet) through the opening created by the warp yarns. This sequence, repeated endlessly, forms woven fabrics of almost infinite variety.

Knitting machines are just as versatile. Their mechanical needles are just as accurate and many times faster than hand knitting. Knitted fabrics are produced by interlocking rows of yarn and loops. As new loops are formed, they are drawn through those previously shaped. This inter-looping and the continued formation of new loops produces knit fabric. A circular knitting machine produces mainly jersey and a variety of double knits. Flat knitting machines produce yard goods such as tricot and raschel knits.



QUALITY CONTROL, FULLING AND FINISHING Quality control inspection is a part of the final step in fabric manufacturing. A thorough examination of the cloth identifies imperfections such as broken threads, variations in color and other undesired effects. These are removed and the area is rewoven by hand if necessary.

Fulling Once the fabric passes inspection it undergoes a controlled shrinkage process called *fulling* or *milling*. Moisture, heat and friction are applied causing the fabric to shrink a controlled amount in both length and width. This tightens the weave and improves the hand (texture) of the fabric.



Finishing Woolens are often brushed to raise the ends of the wool fibers above the surface of the cloth in a soft, fluffy nap. Naps range from the lightly brushed surfaces of a flannel to the deep-pile effect of fleecy coatings. Deep naps are produced by passing the fabric over cylinders covered with fine metal wires and small hooks. These hooks pull fiber ends to the surface and create the nap.

Worsted go through less radical changes in finishing, although the characteristic crisp, firm appearance of worsted fabric is sometimes enhanced by special treatments. *Clear finishing* is a shearing or singeing process which gives the fabric a smooth surface and a crisp feel. *Unfinished* worsteds are lightly napped to give them a woolen-like surface producing a fabric with the softness of a woolen and the firmness of a worsted.

The *decating* finishing process is another shrinking process which gives the fabric stability. It is done by winding the fabric under tension on a perforated cylinder through which steam is passed.

Crabbing sets the cloth and yarn twist by rotating the fabric over cylinders through hot, then cold water baths. The cloth is held firmly and tightly to prevent wrinkling.

Sponging is a preshrinking process achieved by dampening the fabric with a sponge, then rolling it in moist muslin. It is applied to wool fabric before cutting to prevent possible contractions of the fabric in the finished garment caused by stresses created in manufacturing. "London Shrinking" is a popular sponging treatment which prevents shrinkage during manufacturing.



CHEMICAL FINISHES Several chemical finishes may be applied to wool, depending on their end use. Products labeled SUPERWASH®, a trademark owned by The Wool Bureau, Inc. are 100% wool that can be machine-washed (using ordinary laundry detergent) and machine-dried. The process that qualifies SUPERWASH® certification is a mild chemical treatment applied to the fiber to form a permanent microscopic film of resin which spreads evenly over the fiber surface, coating the scales of the wool fiber. The finish reduces friction and fiber entanglement and eliminates felting shrinkage that usually occurs if wool garments are machine-washed and dried. Wool can also be treated chemically to make it highly resistant to moths, stains, moisture and fire.

The finishing process is the final step in wool processing which takes the wool from the sheep's back to woven or knitted fabric.



AMERICAN WOOL

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