



THE THREAD

Unraveling the Mysteries of Fibers, Fabrics and Floorcoverings

COTTON... King of Natural Fibers

What Is Cotton?

When we think of cotton, many images come to mind: the soft silky feel of an Egyptian cotton shirt, the homespun look of a braided rug, the luxury of a high thread count sheet.

Cotton is one of the most versatile fibers, derived from the seed hair of a bushy annual plant.

Cotton is made primarily of cellulose, the polymer that is the building block for the cell walls in all plants. Cotton is classified as a **natural** cellulosic fiber and shares characteristics with other plant-derived fibers like linen, ramie and jute, in contrast to the **man-made** cellulose such as rayon and acetate.

Cotton cultivation is thought to have occurred as early as 12,000 BCE in the area that is now Egypt. Until recently, it was believed that cotton was transported to the Americas by early explorers. Reliable data now indicates that cotton is indigenous to North and South America, as well as to Asia and Africa.

Cotton is still the most widely used fiber in the world, accounting for over 40 percent of total fiber production. It is

grown in over 80 countries worldwide, with a staggering total of more than 50 billion pounds produced annually.

Fiber Characteristics

When selecting cotton for upholstery, draperies and rugs, it is important to understand its characteristics in order to know how it will stand up to wear and aftercare.



Cleanability

One important fact is that cotton is stronger when wet so

it stands up well to several methods of cleaning, which include:

SOLVENTS: Cotton can be cleaned with common dry cleaning solvents such as mineral spirits.

ALKALINES: While many cotton fabrics are labeled with an "S" colorfastness code, the vast majority of cotton fabrics can be cleaned successfully with water and an alkaline cleaner. Of course, pre-testing should always be performed and alkaline cleaners must be tested very carefully since these products are more likely to cause dye bleeding. Cellulosic browning can also be a problem with some cottons, but using a lower pH cleaner and drying the fabric quickly with air movement can minimize this problem.

COMPATIBILITY WITH ACIDS: Cotton is susceptible to damage by acids. Strong acids can damage cotton very quickly, while even moderate acids tend to cause gradual disintegration. It should be noted that the flame retardants sometimes used on cotton fabrics are very often acidic in nature, causing long-term damage and discoloration.

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Resiliency

Cotton is among the least resilient of textile fibers. When the fiber is crushed or deformed, it does not readily regain its original shape. This is not a serious disadvantage in woven fabrics or flat-woven rugs, but it can become a problem when cotton is used in a pile floor covering and subjected to foot traffic. For this reason, cotton pile rugs should only be used in light traffic areas.

More Things to Know About Cotton

SUNLIGHT: Prolonged exposure causes yellowing and gradual degradation of cotton fibers.

MICROORGANISMS: Cotton, like other cellulosic materials, is damaged by fungi such as mildew.

INSECTS: Moths and beetles will not attack cotton, but silverfish sometimes will.

What is Mercerized Cotton?

Often we see the word *mercerized* associated with cotton, but what does it really mean?

As mentioned previously, cotton will stand up to strong alkalis. In a process called mercerization, cotton fibers are exposed to strong alkalis and the result is a swelling of the fibers which ultimately increases their strength and durability and also produces a fabric with a silk-like hand and luster.

A Word About Finishes

Cotton, like other natural fibers such as linen, wool and silk, is not thermoplastic. In simple terms, this means that the fiber does not soften or melt when exposed to heat. Why is this significant?

In upholstery fabrics, certain decorative finishes are only durable if the yarns in the fabric become pliable when heated. This allows a new finish to be added, the fiber to be reshaped, and the entire piece cooled to hold that new look.

When finishes like moiré and gaufrage (embossing) are used on fabrics that are predominantly cotton, the effect is considered non-durable. Indeed, these become true “dry clean only” fabrics, since water-based liquids of any kind will damage the finish.

No Absolutes

When writing technical articles about fibers, we sometimes worry that a piece of information will be taken as an absolute.

If we state that a particular fiber or construction has certain characteristics, we are usually speaking in general terms (unless stated otherwise). There are too many variables in the world of textiles to say “all fabrics of this type will behave in this way.”

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