



FactSheet

Extension

Ohio State University Extension Fact Sheet

Textiles and Clothing

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Microfibers: Functional Beauty

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Performance with beauty describes the potential of microfibers. They are very fine fibers compared to more conventional forms which gives them unique and desirable properties. To provide a measure for comparison, microfibers are half the diameter of a fine silk fiber, one-third the diameter of cotton, one-quarter the diameter of fine wool, and one hundred times finer than human hair.

"Denier" is the term used to define the diameter or fineness of a continuous or filament fiber such as silk or man-made fibers. Denier is the weight in grams of a 9000-meter length of fiber or yarn. The higher the number, the thicker the fiber.

In order to be called a "microfiber," the fiber must be less than one denier. Fine silk, for example, is approximately 1.25 denier. A microfiber would need to be 0.9 denier or finer. Many microfibers are 0.5 to 0.6 denier. For another comparison, very fine nylon stockings are knit from 10 to 15 denier yarns consisting of 3 to 4 filaments. A 15 denier yarn made of microfiber would have as many as 30 filaments.

So what is so special about very fine or microfibers? The many fine fibers packed together create a depth and a body to fabrics from which they are made. Fabrics have luxurious drape. Although fine and lightweight, they don't exhibit a flimsy quality. The many tiny filaments or fibers can slide back and forth and maneuver around within the yarns in a fabric allowing the fabric to flow and drape freely, yet still possess body.

Consider a very thick rope. If you bend it, it will be stiff and form a rounded arc. If you take many finer threads or yarns together until they form the same diameter as the thick rope and bend them, they will form a sharper bend or curve. Each of the individual strands can move independently to create more flexibility or pliability. This effect occurs with microfibers. Each of the many very fine fibers moves independently to create lovely drape, yet the fine fibers can be packed together tightly for body in a fabric.

Microfibers are not necessarily new, but they are being used in different ways today. The first fabric made from microfiber was Ultrasuede™ in which short polyester microfibers were imbedded into a urethane base. Today, microfibers are being used in both long continuous lengths as well as short or staple lengths.

Properties of Microfiber Fabrics

Microfiber fabrics are generally lightweight, resilient or resist wrinkling, have a luxurious drape and body, retain shape, and resist pilling. Also, they are relatively strong and durable in relation to other fabrics of similar weight.

Because microfibers are so fine, many fibers can be packed together very tightly. The denseness results in other desirable properties. With many more fine fibers required to form a yarn, greater fiber surface area results making deeper, richer and brighter colors possible.

Also, since fine yarns can be packed tightly together, microfibers work well in garments requiring wind resistance and water repellency. Yet, the spaces between the yarns are porous enough to breathe and wick body moisture away from the body. When comparing two similar fabrics, one made from a conventional fiber and one from a microfiber, generally the microfiber fabric will be more breathable and more comfortable to wear. Microfibers seem to be less "clammy" in warm weather than conventional synthetics.

One caution related to synthetic microfibers is heat sensitivity. Because the fiber strands are so fine, heat penetrates more quickly than with thicker conventional fibers. As a result, microfibers are more heat sensitive and will scorch or glaze if too much heat is applied or if it is applied for too long a period. Generally, microfibers are wrinkle resistant, but if pressing is needed at home or by drycleaners, care should be taken to use lower temperatures.

Fiber Availability

Man-made fibers are formed by forcing a liquid through tiny holes in a device called a spinneret. With microfibers, the holes are finer than with conventional fibers. Potentially, any man-made fiber could be made into a microfiber. Microfibers are most commonly found in polyester and nylon. Some rayon and acrylic micros are in production and available to consumers. Micros can be used alone or blended with conventional denier man-made fibers as well as with natural fibers such as cotton, wool, and silk.

Garments made from microfibers are usually labeled to identify their presence, for example: "100% polyester microfiber." Many fiber companies use trade names to identify their microfiber products. A few examples include:

- Trevira Finesse (polyester)
- Fortrel Microspun (polyester)
- DuPont Micromattique (polyester)
- Shingosen (polyester)
- Supplex Microfiber (nylon)
- Tactel Micro (nylon)
- Silky Touch (nylon)
- Microsupreme (acrylic)

Fabric manufacturers also use trade names for microfiber fabrics. They include:

- Logantex:
 - Charisma--dress weight with suede-like finish
 - Ultima--water repellent finish
- Thompson of California:
 - Moonstruck--soft sueded finish, silk-like
 - Micromist--brushed finish
 - Regal--dry hand
- Springs Mills:
 - Silkmore--sandwashed silk finish
 - Stanza--water repellent microtwill
 - Vanessa--reversible fabric for rainwear

Microfibers are used in a variety of fabrics, but most commonly in dress and blouse weight garments. Suit jackets and bottom weights are becoming available. Look for micros in lingerie, rainwear, outdoor fleece and wind-resistant sportswear, as well as tents, sleeping bags, track and jogging suits. The strength of microfibers make them particularly adaptable to sueded or sandwashed finishes because of their extensive fiber surface area and the use of strong fibers like polyester and nylon. As a result, many microfibers simulate the appearance of sandwashed silk.

Caring for Microfibers

Microfibers can generally be cared for in a manner similar to that of conventional fibers made from the same fiber type. For example, fabrics made from polyester and nylon microfibers can probably be machine washed and tumble dried similar to fabrics made from regular polyester and nylon fibers. Polynosic or high wet modulus rayons are machine washable while viscose rayons perform best when drycleaned. Rayon microfiber should be cared for depending on whether it is a polynosic or viscose-type rayon. The fiber properties, not the fineness of the fiber, usually dictate recommended care. Always follow care labels on garments.

A few cautions should be noted regarding microfibers. Because they are very fine or small diameter, heat penetrates the fibers more quickly than thicker fibers. As a result, glazing, melting

or scorching can occur quickly. This is a particular concern with heat sensitive fibers such as polyester or nylon. Use a cool iron, if pressing is necessary, and do not leave the iron on the fabric too long. Also, avoid using too much pressure as shine and ridges may develop on the surface.

Static may develop in fabrics from synthetic microfibers, especially during dry winter months when heating systems are turned on and the humidity is low. Fabric softeners in the rinse cycle of the washing machine may lessen the problem. Paper dryer sheets can be used; however, temporary spots from excessive heat in the dryer may form on the microfiber. The delicate finish of microfiber fabrics and the amount of fiber surface make the spots noticeable if they develop.

As with all fine garments, avoid jewelry that is rough or jagged. It can cause pulls, snags or general abrasion to garments. Although microfibers in a yarn are strong, the individual fibers are extremely fine and could abrade easily.

Enjoy microfiber garments in your wardrobe. They have a luxurious silk-like hand. Generally, microfibers are durable and should provide good wear if used appropriately and cared for properly.

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