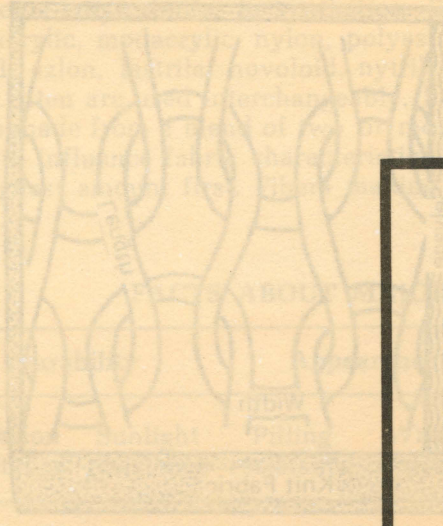
B-1342

FABRIC FACTS



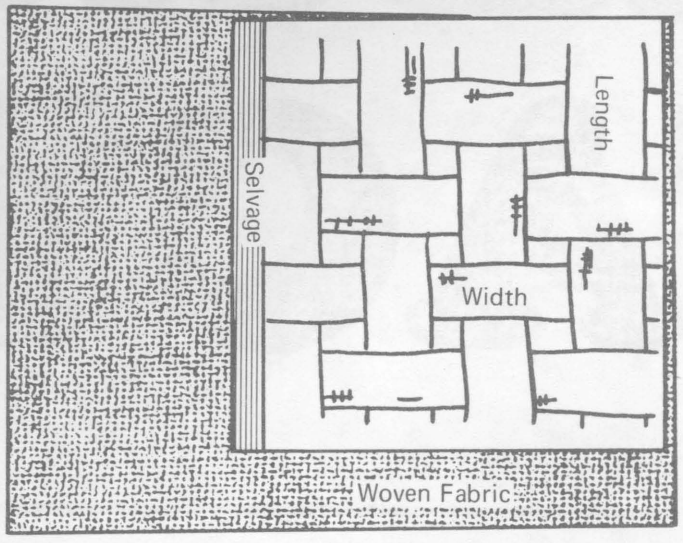
All About . . .

- Fibers
- Fabrics
- Finishes

The Texas A&M University System

Texas Agricultural Extension Service

Daniel C. Pfannstiel, Director
College Station


Length
Selvage
Width
Woven Fabric

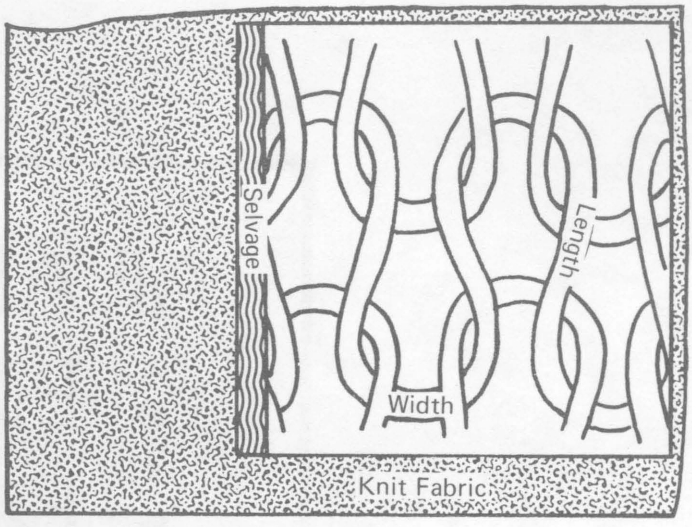

Selvage
Length
Width
Knit Fabric

Figure 1.

FABRIC FACTS

Becky Saunders*

Knowledge of fibers, fabric types and finishes can help you buy fabrics and garments that best meet your needs. Each of these factors contributes to the characteristics of a fabric.

Each fabric must be evaluated on its merits. Previous experience may or may not be reliable since improvements are continuously being made. Improvements develop from consumer demand and expectations. Also, shortages in raw materials, manufacturing trends and efforts to hold down costs result in fabric changes.

The following charts are designed as convenient references in selecting and maintaining fabrics and garments. Labels will aid you in identifying fibers and finishes. Trade names for fibers and finishes are followed by the general name—for example, Dacron polyester. Trade names also may indicate a certain type of yarn processing. Several fibers or finishes may be combined under one trade name.

Refer to Extension publication B-1240 *Guidelines for Quality Clothing Construction* for consumer in-store tests to determine quality.

FACTS ABOUT MAJOR FIBERS

Fiber content is basic to fabric appearance and performance. The law requires that fibers be identified and listed on the label.

Fibers usually are categorized as natural, man-made or synthetic. Naturals, which are made either from protein or cellulose, include cotton, wool, linen and silk. Man-made fibers are adapted from natural cellulose and include acetate, triacetate and rayon. In some ways they are similar to natural fibers and in some ways similar to synthetics. Synthetics are made entirely of chemical products and include acrylic, modacrylic, nylon, polyester and spandex. Less familiar synthetics include anidex, aramid, azlon, lastrile, novoloid, nytril, olefin, vinal and vinyon. The terms "man-made" and "synthetic" often are used interchangeably, but a difference does exist.

Some fabrics are made from a blend of two or more fibers. The fiber making up at least 50 percent of the blend will influence fabric characteristics the most. Blends are listed in order of percentage with the highest amount first. Fibers making up less than 5 percent of the total need not be listed.

FACTS ABOUT MAJOR FIBERS

Fiber	Durability		Appearance		Comfort	Care
General name (trade name examples)	Abrasion resistance	Sunlight resistance	Pilling resistance	Wrinkle resistance	Absorbency	Check care label carefully. In addition:
NATURALS						
Cotton	Good	Good	If pilling occurs, garments do not become unsightly as pills often break off.	Low	Good	Attacked by mildew.
Linen	Fair	Good		Low	Excellent	
Silk	Fair	Low		Good	Excellent	Weak when wet. Damaged by chlorine bleach.
Wool	Fair	Fair		Excellent	Excellent	Wool damaged by dry heat.

* Area Extension clothing specialist, The Texas A&M University System.

FACTS ABOUT MAJOR FIBERS (Continued)

Fiber	Durability		Appearance		Comfort	Care
General name (trade name examples)	Abrasion resistance	Sunlight resistance	Pilling resistance	Wrinkle resistance	Absorbency	Check care label carefully. In addition:
MAN-MADES						
Acetate (Avisco, Celeperm, Chromspun, Estron)	Low	Good	Excellent	Good dry, poor wet	Fair	Weak when wet. Dissolved by nail polish remover.
Rayon (Avril, Prima, Fibro FR, Fortisan, Zantrel, Skyloft)	Fair	Good	Excellent	Low	Excellent	
Tri-acetate (Arnel)	Low	Low	Excellent	Very good	Low	
SYNTHETICS						
Acrylic (Acrilan, Creslan, Orlon, Zefran)	Fair	Excellent	Fair	Good	Low	Remove oily stains before laundering. Use fabric softener to reduce static.
Modacrylic (Dynel, Verel, SEF)	Fair	Excellent	Fair	Good	Low	Remove oily stains before laundering.
Nylon (Antron, Caprolan, Enkalure, Qiana, Crepeset, Cantrece)	Excellent	Fair	Low	Very good	Low	To maintain whiteness, use commercial products. Use fabric softener to reduce static. Remove oily stains before laundering.
Polyester (Dacron, Encron, Fortrel, Kodel, Trevira)	Good	Good	Low	Good Excellent	Low	Remove oily stains before laundering. Use fabric softener to reduce static.
Spandex (Roica, Lycra, Glospan, Numa)	Good	Fair	Excellent	Excellent	Low	Whites may yellow. Do not use chlorine bleach.

FACTS ABOUT MAJOR FABRIC TYPES

Fabrics are most often made by knitting or weaving, but may also be netted, braided, bonded, fused or felted. A new type of fabric combines knitting and weaving and often is used in outerwear and home furnishings, and as an interfacing. Just as each fiber has certain characteristics, so does each fabric type.

Woven fabrics are made by crossing two sets of yarns at right angles, one over the other. A weave is varied by changing the way the yarns cross, such as twills or satin weaves. Knits are made by looping yarns together. The pattern of loops can vary to make tricots, single or double knits. (See Figure 1, inside front cover.)

FACTS ABOUT MAJOR FABRIC TYPES

Fabric Type	Performance Properties		
Woven (Yarns cross at right angles)	Many interlacings, or compactness and high thread count result in: Durability Firmness Water and wind repellency	Strength Body Stability	Increased fire retardance
	Twills may flatten with wear and shine.		
	Fewer interlacings, or openness and lower thread count result in: Flexibility Permeability of water and wind	Drape Increased flammability	Raveling
	Floats or loose threads on surface result in: Luster Smoothness	Flexibility Resiliency	Tendency to ravel and snag
Knitted (Looped)	Loop structures generally result in: Elasticity Stretch Wrinkle resistance	Drape Bulk	Instability Snagging
	The smaller the knit loop, the greater the durability.		
Warp Knits (Made with several yarns in a zigzag pattern)	Always flat with selvages		
Tricot Knits May be single, double or triple warp. (Fine vertical ribs on front and crosswise ribs on back.)	Resists bagging and creasing Run-proof except for single knit tricots	Snag resistant Drapeable Non-raveling	Strong Crosswise stretch Stable
Rachel Knits (Lacy; surface pattern; often has alternating thick and thin yarns.)	Durable	Run-proof	
Weft Knits (Made with a single continuous yarn.)	Circular (tubular) or flat with selvages		
Plain Jersey Knits T-shirt, sweater, terry and velour knits (Flat, smooth surface on right side; may be bonded to another fabric; vertical ridges on front and horizontal rows that look like half circles on the back, or back may have a mottled appearance.)	Light May sag and run When stretched in crosswise direction, crosswise edge will curl to right side of fabric	Soft Can be raveled in crosswise direction	More crosswise stretch than lengthwise
Rib Knits (Pronounced vertical ridges for wavy appearance; both sides identical.)	Considerable crosswise stretch for a close fit	May sag and run Good insulation	Edges do not curl
Purl Knits (Pronounced horizontal ridges from selvage to selvage.)	Excellent crosswise and lengthwise stretch	May stretch more in lengthwise direction	May sag and run Edges do not curl

FACTS ABOUT MAJOR FABRIC TYPES (Continued)

Fabric Type	Performance Properties		
Knit-Weave Combinations (Parallel yarns connected with a chain stitch.)	Lightweight	Controlled stretch or stability as desired	Abrasion, pilling and snag resistant
Laced (Knotted and twisted yarns)	Open and porous Tendency to snag	Little body	Low durability and stability
Nonwoven—Stable or bias (Fiber mat)	Thick Inelastic	Stiff No raveling	Boardy Low strength
Films (Vinyl-like)	Lack of breathability, porosity (comfort) and drape Water and dirt repellent May lack strength unless supported by fabric base		

FACTS ABOUT COMMON FINISHES

Finishes are processes or treatments a fabric goes through after it is constructed (knitted, woven, etc.). All fabrics are finished to some extent. Finishes help make a fabric more suitable for its intended use by improving performance, appearance and texture. Finishes can change the basic characteristics of fabric types and fibers.

FACTS ABOUT COMMON FINISHES

Finish (trade name examples)	Advantages	Disadvantages	Primary Use
Anti-static	Reduces clinging.	Semi-durable.	Lingerie, sleepwear
Antiseptic (Pacificate, Sanitized)	Resists bacteria. Prevents damage and decay from perspiration. Durable Hygienic		Shoes and socks Luggage Underwear
Crease resistant	Resists wrinkling.	Stiffens fabric. Reduces absorbancy, strength and abrasion resistance. Semi-durable or durable.	Cotton, rayon and linen
Flame resistant (Fire Guard, THPC, Firestop)	Reduces risk of flammability.	Stiffens fabric. Reduces drape. Significantly reduces strength. Non- to semi-durable, especially when laundered with soap or chlorine bleach.	Children's clothing and sleepwear
Moth proof (Woolgard, Moth Snub)	Permanent or semi-durable.		Wool
Mildew resistant (Fresh-Tex)	Prevents growth of mildew and mold.		Rayon, cotton and linen

FACTS ABOUT COMMON FINISHES (Continued)

Finish (trade name examples)	Advantages	Disadvantages	Primary Use
Permanent press or durable press (Carepress, Dan-Press, Koratron, Penn Press, Coneprest, Super Set, Qualitized)	Adds ease of care. Reduces wrinkling.	Adds stiffness. May have odor. Center fabric folds may not press out. If finished off-grain, cannot be straightened. Color may frost at creases and folds or be uneven. Seam puckering. Reduces absorbancy (comfort). Attracts oily stains.	Cotton and cotton blends
Shrinkage resistance (Zeset, Sanforized, Sanfor-Knit, Pak-Nit)	Controls shrinkage to percent given (1 to 2 percent in wovens, 5 percent in knits).	Follow care instructions to insure shrinkage controlled to amount listed.	Cotton and cotton blends; jeans, shirts, blouses; general use
Soil release (Visa, Zelcon TGF, Dual Action Scotchgard)	Aids in removal of soils (especially oily). Greater absorbency (comfort). Improves drape and anti-static quality.	Semi-durable.	Permanent press fabrics Work clothes Polyester for comfort
Waterproof (Reevair)	Prevents penetration of air or water.	Lacks absorbancy (comfort). May stiffen fabric. May stiffen in dry cleaning.	Outdoor wear
Water repellent (Cravenette, Zelan, Zepel, Scotchgard)	Sheds water. Allows air flow (comfort). Most effective on tightly woven fabrics. Some are durable.	Some are non-durable. May be shinier, stiffer or rustle. Soil, creases and wrinkles reduce effectiveness. Can become wet.	Outdoor wear

DO YOU KNOW?

THE FALLACIES ...	AND ... THE FACTS
All polyester is Dacron; all spandex is Lycra, etc.	Fiber content means the general type of fiber, such as polyester. Often when a trade name such as Dacron becomes popular, it is incorrectly used to mean all polyester. Each manufacturer has its own trade name.
All natural fibers are best or all synthetic fibers are best.	There is not a perfect fiber. Blends of two or more fibers combine the best features of each. Also, certain natural and synthetic fibers vary considerably among themselves.
Fiber content and finishes can be determined by appearance. All polyester looks alike, etc.	Labels are the only reliable way to determine fiber content and finishes used. Finishes often are not visible. Some fibers can easily be made to look like others; for example, acrylic may look and feel like wool.
All double knits are polyester; all woven fabrics are cotton; all lightweight knits are Qiana, etc.	Any fiber can be knitted or woven to look many different ways.
All double knits are medium weight; all suedecloth is non-woven, etc.	Each fabric type can look very different because of varying yarns, fiber content, decorative finishing or closeness of construction.

DO YOU KNOW?

THE FALLACIES ...	AND ... THE FACTS
Fiber content alone determines care requirements.	A combination of fiber content, fabric type and finishes determines fabric care. After the fabric has been made into a garment, trim and inner fabric also can influence the care required.
All fabric finishes are always permanent.	Some finishes are permanent, but not all. Choose permanent characteristics of fibers, fabric types or finishes when available. Look for labeling information and reliable trademarks.
Higher cost means higher quality.	Cost does not necessarily determine quality. Fabric quality is determined by performance.

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