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Textile Reference Guide

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We need to emphasize to our customers the importance of **product knowledge**. It is not enough to simply highlight the beauty, uniqueness, and versatility of our fabrics, but we also need to make sure that the customer is aware of the properties and characteristics of the fabrics we carry.

It is the designer's responsibility to select the appropriate fabrics for their intended applications, but it is the responsibility of the Maxwell rep to provide as much information as possible to help our customers make correct fabric selections. Often times, customers who are unaware of a fabric's construction and natural properties believe those qualities are flaws or have failed expectations of how a fabric should perform, and therefore be used.

We have compiled this brief 'cheat sheet' to help you explain some **common characteristics of fabrics, care information, and textile glossary**, to relay to our customers. **In addition to this, every rep must review the list of relevant information listed on the back liner of each collection** with their customers when showing the new product.

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Basic Fabric Properties and Characteristics

****Please note: it is the responsibility of the designer/workroom to make sure fabrics are handled properly. Check fabric content before placing steam or hot iron directly on fabrics.**

- Check for flaws carefully before cutting
- Check fabric content before placing steam or hot iron directly on fabrics.
- Determine appropriate application for each fabric before manufacturing.
- Determine proper fabric direction for intended use: noting fabrics which are railroaded.

Abrasion

Wyzenbeek and Martindale tests are the 2 methods commonly used to predict wear-ability. The actual performance of a fabric is determined by many factors such as fiber content, weaves, finishes, furniture design, maintenance, cleaning and usage. Durability of an upholstery fabric is a complex interaction of a number of performance tests that, in addition to abrasion, includes seam slippage, pilling, tensile strength, and usage.

There is no correlation between the Wyzenbeek and Martindale tests so it is not possible to estimate the number of cycles that would be achieved on one test if the results from the other test were known.

Wyzenbeek is the test most often used in North America. The fabric is tested by rubbing an approved fabric (usually cotton duck) in a back and forth motion to test warp and weft. The number of double rub cycles achieved before two yarn breaks occur or noticeable wear is observed is recorded as the fabrics abrasion rating.

Martindale test is most often used in Europe using a cotton duck or worsted wool in a figure 8 motion until the fabric shows a change in appearance.

Since every fabric construction (regardless of fiber content) is different, every fabric is tested for:

- **Abrasion Resistance**
 - Medium upholstery is 12,000 Wyzenbeek/ approx 9,000 Martindale
 - Heavy duty is 15,000 Wyzenbeek/ approx 12-18 Martindale.

- Commercial standards are 30,000 Wyzenbeek/ 40,000 Martindale.
- **Yarn/Seam/Slippage:** Measures the ability of a sewn seam to resist slippage or breakage when subject to tension.
- **Breaking Tensile Strength:** Measures the extension length of fabric to it's breaking point.
- **Colorfastness to Light:** Measures resistance to fading or color degradation when exposed to light.
- **Colorfastness to dry and wet crocking:** Measures fabrics' ability to withstand wet and dry rubbing without color degradation or the transfer of color.
- **Pilling:** A test to measure the amount of pilling (formation of fuzzy balls on the surface of the fabric) and the fuzzing that will occur.
- **Fire resistance:**
 - Drapery - NFPA 701: A vertical flame test which measures the ignition resistance of a specimen.
 - Upholstery - UFAC class 1: North American standard cigarette ignition burn test.
 - Upholstery - NFPA 260 class 1: European standard cigarette ignition burn test.
 - Upholstery - Cal 117: Determines the ease of ignition and burning rate when a specimen is subject to an open flame.
 - ASTM E84 - Fire resistance test for wall-coverings
 - MVSS 302 - Motor Vehicle Safety Standard. Flammability test for automotive
 - BS5852 – British Standard cigarette burn test for Upholstery.

**** Please note:**

- It is the responsibility of the consumer to decide whether to add a backing to fabric that does not have a latex backing for additional stability
- It is the responsibility of the consumer to decide whether to add treatments to patterns that do not list Teflon/Scotch Guard finishes.
****Please note that stain resistant is never 100% stain "proof".**
- It is the customer's responsibility to ensure a large enough seam allowance is used to prevent seam slippage. ****Please note it is also the customer's responsibility to decide whether to serge fabrics after cutting & before sewing** to prevent fraying and tearing at seams.

Warp, Weft & Selvages

Woven fabrics are made by interlacing two sets of yarns at right angles to each other. The lengthwise yarns are known as warp yarns, and the widthwise

yarns are known as the weft, or filling yarns. The lengthwise edges of the fabric are the selvages.

Railroaded Fabrics

The term railroading refers to the direction of the fabric as it is woven at the mill. Most fabrics are woven, or printed, up the roll; along the vertical direction of the selvage edges. This means the selvages run the length of the fabric. However, many fabrics are woven “railroaded”, meaning the direction of the fabric runs horizontally between the selvages, therefore making your selvage edges the top and bottom of the fabric. This means the width of the fabric becomes the length.

** Please note:

- Railroaded fabrics are listed as such in fabric sample books. It is the customer’s responsibility to determine the correct fabric direction and relay the proper information to the manufacturing workrooms.

Pilling

Pilling is the formation of small, fuzzy balls on the surface of the fabric. Certain fibers and weaves are more prone to pilling than others, but is often a normal part of wear and tear.

Short or loose fibers on the surface of a fabric tend to tangle together leading to pilling. Fabrics like angora, cashmere, and wool are prone to fabric pilling since they are characterized by plentiful loose fibers.

Pilling is a common characteristic of many man-made fibers. Fabrics containing fibers such as acrylic, nylon, or polyester have a natural tendency to pill. Pilling occurs as a result of a synthetic fiber’s natural tendency to migrate to the surface of a woven fabric. Most pilling is a result of friction on the fabric’s surface which loosens fibers and tangles them. This friction is often a result of normal wear and tear over time, regular cleanings or the use of improper laundering techniques. When selecting fabric consider the weave. Tightly twisted yarns are considered more secure than loosely twisted yarns and the tighter the weave the less pilling can occur (for example the tight weave of denim rarely ever pills).

Crocking

Crocking occurs when excess dye rubs off of one dry fabric onto another dry fabric. Crocking is usually more of a problem with dark and vivid colors such as black, blue, and red since it is almost impossible to remove all excess dyes during the finishing of these saturated colors. Crocking occurs most often on linens, cottons, polyesters and corduroy.

Crocking can sometimes be minimized if the fabric is washed in mild/warm water with vinegar. Always test a sample first.

Example: The brand "Gap" puts labels on its jeans stating it is not recommended to sit with jeans on light colored furniture as the color may rub off. This is an example of crocking.

Color Migration

Polyurethane (PU) is subject to color migration from other colors of this same fabric. Color migration is a chemical reaction between dye stuff; one dye-stuff reacts with the other and continues to dye. To avoid color transfer the surface of this fabric should not come in contact with another color of this same fabric.

Color transfer is a known phenomenon that occurs with Polyurethane (Vinyl). When a PU surface comes in contact with another PU surface, a chemical reaction occurs, which causes color migration from dark to light colors. This chemical reaction will not occur when this fabric comes in contact with other types of fabrics or cloths.

Polyurethane & Faux Leather Cleaning & Care Information

****Please note: stain resistant is never 100 % stain "proof".**

Clean with warm water. Rub gently in a circular motion. Remove all stains and spills immediately. Warm water will clean stains such as soda, coffee, tea, milk, oil, ketchup, mayonnaise, chocolate, lipstick and make up.

- Avoid over wetting.
- Do not dry in direct sunlight.
- Do not dry with a hair dryer.
- Do not use chemical cleaning agents.
- Alcohol based products will deteriorate PVC
 - May be cleaned with a water based product such as foam from a mild detergent, such as ivory flakes, flamorene brissel foam, upholstery cleaner, and tide have been found suitable or a non-solvent upholstery shampoo.
 - **Note: Always test any cleaning agent in a hidden part of the furniture before using.**
- Ink and shoe polish will permanently stain PVC.
- Avoid direct sunlight.
- **Polyurethane is NOT breathable**

*****Note Regarding Faux Leather:***

Many of our faux leathers in the Easy Rider collection contain a percentage of real leather in the backing to create a more natural look and feel of the

material. The faux leather becomes softer and more flexible – much like real leather.

The difference between PU (polyurethane) & PVC (polyvinylchloride) is simply that PU is a superior product as it feels more like real leather.

Indoor / Outdoor Faux Leather (Pattern: EXPOSE)

The faux leather in our **Home & Garden** series is a completely different product than **polyurethane** for interior use. The faux leather in our Home & Garden collection was made specifically for outdoor use:

- Surface content: 100% Polyurethane
- Backing content: 60% polyester / 40% cotton
- Wyzenbeek: Over 300,000 Double Rubs
- Passes Fire ratings of UFAC Class 1, NFPA 260, and Cal 117
- Minimum 1000 hours of indoor UV exposure
- Cold crack resistant to 0 degrees Fahrenheit or -18 Celsius.
- Water and mildew resistant
 - “**Resistant**” is different than water or stain “**proof**”.
- **Care Instructions for H&G leather:**
 - Water should be wiped up as soon as possible and stains should be taken care of immediately.
 - This fabric has a “wipe out” finish so most stains, including ball point pen, can be easily wiped out with a clean dry towel (unlike regular vinyl products). The use of rubbing alcohol (isopropylalcohol) can be used to clean any remaining stain which is also unlike regular vinyl products. The final step in cleaning is to wipe down with clean warm water to remove any residue.
- **Warranty**
 - There is no specific warranty, but Maxwell will stand behind normal performance for this type of product.

Indoor / Outdoor General Fabric Information

Maxwell Home & Garden fabrics are made from 100% solution dyed fibers to withstand years of normal exposure to sun, rain, and chlorine. These fabrics are bleach cleanable, inherently anti-microbial, mildew and stain resistant and durable for heavy duty residential use.

Solution dyeing means that color is added to the fibers while they are in a liquid state during the manufacturing process. The color is integrated into the fiber, which is why the fabric can be cleaned with bleach and still retain its color.

Think of the analogy of a carrot and a radish;

A solution dyed fiber is like a carrot, which is orange throughout. The outside is orange but when cut in half is also orange on the inside. Regular fibers are like a radish. A radish is red on the outside only, but when cut in half is white on the inside. Meaning the color is only on the outer surface instead of throughout the entire fiber.

Cleaning

Mild soap and water is usually all that is needed to remove general stains on solution dyed fabrics. Bleach can be used on tough stains when needed and simply left to air dry. These fabrics have been made to be inherently anti-microbial and will not mildew.

****Please note:** These fabrics are water-repellant, not waterproof. Once the fabrics have been cleaned it is best to retreat the fabric with 303 High Tech Fabric Guard™ (available at Marine and sports goods stores).

Please see the liners in the back of our books or request a hand out for specific cleaning instructions.

Maxwell carries many types of performance fabrics. The following are details pertaining to each of the types available through Maxwell.

BELLA DURA

- Meets or exceeds 50,000 double rubs
- Meets or exceeds 1500 hours lightfast
- Antimicrobial - inhibits odor and growth of mildew for the lifetime of the fabric
- Water repellent (not waterproof)
 - Note: Retreat fabric after its been cleaned with a water repellent treatment (303 High Tech Fabric Guard available at awning or marine shops)
- 100% stain resistant
- Soap and water will remove most stains
- Bleach Cleanable for tough stains

Other Testing Information:

UFAC CLASS 1 & CAL 117 compliant

AATCC TM 8 - colorfastness to crocking

AATCC TM 16 - colorfastness to light

AATCC TM 107 - colorfastness to water

AATCC TM 130 - stain resistance

AZTEC TM 30 - antimicrobial

BELLA DURA WARRANTY

5YEAR LIMITED WARRANTY

Maxwell Fabrics provides a 3 year limited warranty on all Bella Dura brand fabrics for loss of color or strength when used under normal non-abusive conditions of sunlight, mildew or rot. Fabric found defective within 3 years of the purchase date will be replaced free of charge.

This limited warranty expressly excludes labor and installation costs.

SUNBRELLA

- Meets or exceeds 15,000 double rubs
- Meets or exceeds 2200 hours lightfast
- Resists mildew, rot, chlorine
- Water repellent (not waterproof)
 - Note: Retreat fabric after its been cleaned with a water repellent treatment (303 High Tech Fabric Guard available at awning or marine shops)
- 100% stain resistant
- Soap and water will remove most stains
- Bleach Cleanable for tough stains

SUNBRELLA WARRANTY

3 YEAR LIMITED WARRANTY

Maxwell Fabrics provides a 3 year limited warranty on all Sunbrella brand fabrics for loss of color or strength when used under normal non-abusive conditions of sunlight, mildew or rot. Fabric found defective within 3 years of the purchase date will be replaced free of charge.

This limited warranty expressly excludes labor and installation costs.

TERRAZZO

- Meets or exceeds 15,000 double rubs
- Meets or exceeds 2000 hours lightfast
- Resists mold and mildew
- Water repellent (not waterproof)
 - Note: Retreat fabric after its been cleaned with a water repellent treatment (303 High Tech Fabric Guard available at awning or marine shops)
- 100% stain resistant
- Soap and water will remove most stains
- Bleach Cleanable for tough stains

TERRAZZO WARRANTY

3 YEAR LIMITED WARRANTY

Maxwell Fabrics provides a 3 year limited warranty on all Terrazzo brand fabrics for loss of color or strength when used under normal non-abusive conditions of sunlight, mildew or rot. Fabric found defective within 3 years of the purchase date will be replaced free of charge.

This limited warranty expressly excludes labor and installation costs.

WEATHERWIZE

- Minimum 30,000 double rubs
- Minimum 1000 Hours lightfast
- Mildew Resistance
 - Protected against fungus, odor, and mildew growth
- Water repellent (not waterproof)
 - Note: Retreat fabric after its been cleaned with a water repellent treatment (303 High Tech Fabric Guard available at awning or marine shops)
- 100% stain resistant
- Soap and water will remove most stains
- Bleach Cleanable for tough stains

WEATHERWIZE WARRANTY

3 YEAR LIMITED WARRANTY

Maxwell Fabrics provides a 3 year limited warranty on all Weatherwize brand fabrics for loss of color or strength when used under normal non-abusive conditions of sunlight, mildew or rot. Fabric found defective within 3 years of the purchase date will be replaced free of charge.

This limited warranty expressly excludes labor and installation costs.

UV-PRO

- Minimum 10,000 double rubs
- Color fastness to light ISO105-B02: 8
 - This determines the color fastness to indoor light. During this test the samples are exposed to a xenon lamp light. The UV light is filtered. Together with the samples, a standard blue scale is testes. After 150 hours in the machine, the samples are compared to the blue scale and given a rating from 1 to 8.
- Color fastness to light ISO105-B04: 8
 - This determines the color fastness to outdoor light. During this test the samples are exposed to a xenon lamp light without the UV light being filtered. Additionally the samples are sprayed

with water to imitate the effect of rain. Together with the samples, a standard blue scale is tested. After 250 and 500 hours in the machine, the samples are compared to the blue scale and given a rating from 1 to 8.

- UV Test ISO4892-3: 5
 - Also called the aging test. For this test samples are exposed to only the most aggressive radiation of sunlight (UV radiation & humidity). This happens in 2 cycles of about 8 hours: a UV illumination cycle and a condensation without UV illumination cycle. After 500, 1000, and 1500 hours the samples are rated by means of the grey scale, from 1 to 5. Additionally other mechanical tests can be performed to determine the deterioration of the fabric.
- Mildew Resistant
 - Protected against fungus, odor, and mildew growth
- Water & stain repellent (not waterproof)
 - To clean dirty surfaces: brush off loose dirt, use mild soap and water, damp sponge or brush, rinse with water, air dry.
 - Note: Retreat fabric after it's been cleaned with a water repellent treatment (303 High Tech Fabric Guard available at awning or marine shops)
- Soap and water will remove most stains

UV-PRO WARRANTY

5 YEAR LIMITED WARRANTY

Maxwell Fabrics provides a 5 year limited warranty on all UV-Pro brand fabrics for loss of color or strength when used under normal non-abusive conditions of sunlight, mildew or rot. Fabric found defective within 5 years of the purchase date will be replaced free of charge.

This limited warranty expressly excludes labor and installation costs.

Velvet / Chenille

Velvet and Chenille are both “pile” fabrics. The yarns in any pile fabric will flatten and move; creating an irregular surface appearance and texture. These surface variations are the nature of the fabric and should not be considered to be a flaw in texture.

Some slight bruises, marks, or shading may never fully disappear. This should be considered an enhancement to your furniture. The natural antiquing of velvet is, in fact, desirable. Like fine leather upholstery, velvet too, looks better with age.

"Crushed" velvet is made by twisting the fabric while wet. This procedure crushes the pile of the fabric, creating a mottled, uneven surface appearance. These surface variations are the nature of the fabric and should not be considered faulty or defective.

Pile distortion alters the angle of light reflection, producing more obvious areas where the fabric has moved, creating an appearance of color shading or napping. Pile fabric created using shiny yarns, such as rayon or silk; further amplify light reflection, creating even more obvious areas of light and dark patching. Regardless of how carefully velvets are used and transported, some pile crushing and matting will occur, and is impossible to avoid. Once your customers are aware of the natural properties of velvet they will accept these irregularities as part of velvets' luxurious richness and charm.

****Please note:** Regardless of how carefully chenille and velvets are transported, handled and used some pile crushing will occur and is impossible to avoid.

Rayon/Viscose Velvet and Chenille

Rayon is made from liquid viscose and in turn is used synonymously with the word rayon.

A few key properties of **rayon/viscose** to consider when selecting a fabric's application:

- Rayon has a high abrasion resistance but the fibers are not resilient and therefore the pile of a rayon velvet or chenille may flatten, mark, and crease.
- Rayon is also absorbent and therefore will be affected by moisture from steam or perspiration. These moisture sources, in combination with pressure from sitting, may cause marking and shading as the pile crushes.
- Rayon should only be cleaned with a solvent based cleaner. Rayon tends to spot if it comes into contact with water based solutions.
- Rayon is susceptible to water stains so avoid steam and spot cleaning.
- Due to Rayon's natural characteristic to absorb moisture, fibers will be affected by conditions such as heat and humidity in the atmosphere and may shrink and/or stretch.
- Regardless of how carefully chenille and velvets are transported, handled and used some pile crushing will occur and is impossible to avoid.

- The recommendation for cleaning rayon chenille/velvets is spot clean only with a solvent based cleaner. Rayon tends to "spot" if it comes into contact with water based solutions.

Mohair

Mohair is truly an exquisite fiber, and with its delicate appearance it is often a surprise to discover just how durable and hardwearing it can be. Like most luxury fibers, mohair requires proper handling, but when treated in the correct way it can last for a very long time.

Mohair upholstery velours usually do not attract a great deal of dirt, as they are anti-static, and an occasional brushing of the pile will maintain its luster, but stains such as fruit juice and coffee need to be treated immediately with a dry foam cleanser or mild detergent. Any irregularities in the pile may be solved by steaming, using either an iron or the spout of a kettle, held approximately 6" away from the fabric.

Mohair is naturally fire resistant

Blackout Fabric

As soon as a needle is put completely through the fabric, it will show a tiny little hole. The best technique to use when sewing with blackout fabrics is to blind seam the hem. Iron the fabric of the hem over the sewing holes to prevent light from coming through.

- Ideally a rolled hem is the best method for sewing curtains. This is done by simply rolling the hem over twice, sewing and then ironing at a low heat. By pressing the seam, the fibers should shift, therefore covering the holes. When joining panels, you may iron the seam allowance and press to one side. For roman blinds, the tubes used are sewn in a loop. This loop should cover the holes made in the fabric.
- Another method is to apply a textile tape over seams. This tape is commonly called **Fusible Webbing** for drapery and is available to buy online as well as in most retail fabric/notion stores. This is basically an industrial double-sided or one-sided tape that is suitable to use on fabric. Unfortunately we cannot suggest specific brands to use as we find the **sewing method** considerably superior in longevity. Furthermore, we recommend proceeding with caution when purchasing fusible webbing and to consider the following concerns. Being that most fabric adhesives contain heat activated ingredients, exposure to the sun may result in the product melting and damaging your drapes. Some adhesives may also contain ingredients that will yellow the drapes over time from continuous exposure to light.

Silk

The unique texture of silk is created when weaving natural, raw, silk yarns, due to the inherently irregular structure of these yarns. Silk yarns are developed naturally and therefore are consistently impossible to control. Variations in surface textures such as slubs, shading, uneven construction, and various inconsistencies, are the character and the natural beauty of silk, and must not be considered flaws or defects. The silk yarns used are 100% natural, therefore it is the natural character of the fabric that color and texture variations can occur between two rolls of the same color; in fact, often occur within one single roll. It is internationally accepted that due to the nature of the cloth, 100% silk cannot be guaranteed against fading from sunlight and other bright light sources indoors, so we highly recommended that a good quality lining and interlining be used. A backing should be used for upholstery. We strictly recommend professional dry cleaning only to care for your fabric properly.

Dyelots of Linen and Other Natural Fibers

Fabrics made in part or with **100% natural fibers** are prone to **variances in dyelots**. Raw linen and cotton are grown naturally, resulting in slightly different shades of fibers from crop to crop. Since nature is unpredictable, dyelots may vary from bolt to bolt.

Properties of Linen

Linen is made from the fiber of the flax plant.

- Linen is highly absorbent
 - since linen (and other vegetable fibers such as flax and hemp) is very absorbent, the fibers will react to humidity in the air and may have a tendency to shrink and/or stretch as the seasons change
- Linen is highly durable.
- Linen is one of the strongest natural fibers with 2-3 times the strength of cotton.
- Linen has poor elasticity however, and does not spring back readily, explaining why the fiber wrinkles and creases so easily.

Properties of Cotton

- Cotton is a very strong fiber and stands up to abrasion, therefore it is able to wear well.
- Cotton is also an absorbent fiber.
 - absorbent fibers will react to humidity in the air and may have a tendency to shrink and/or stretch as the seasons change
- Cotton is not very resilient and therefore wrinkles.

- Since cotton can take relatively high heat, ironing easily smooths wrinkles
 - steam should be avoided to prevent shrinkage.

Properties of Nylon

- Nylon is a very strong fiber and often added to fabric for increased durability
- Nylon is prone to disintegrate over time in the sun.

Embroideries

Due to the nature of embroidery, the raised yarns/threads creating the pattern may have a tendency to unravel if caught on jewelry, buttons, or sharp finger nails.

****Please note:** the width of embroidery may not run the full width of the fabric as many embroidery looms are narrow width. Please make sure you check your measurements before ordering your fabric.

Checks and Plaids Pattern Matching

It is normal for Plaids and Checks, especially woven fabrics, including silk, to not pattern match. This is a normal situation that occurs due to variances in loom tension during the weaving process.

Based on research throughout the industry, most high end workrooms do not try to match these patterns. Instead, they are often matched only at the top of a drapery treatment and/or a piping is added between the seams to create an optical illusion; distracting the eye from the irregular pattern repeat. Workrooms must check for this in order to plan their cuts accordingly.

Environmental Shrinkage and / or Stretching

When these situations come up it is usually a result of unpredictable and uncontrollable "environmental conditions".

- Fabrics react to dryness, heat, and humidity in the air and can shrink or stretch.
- The industry accepts a 3% change in fabric length.
- It is completely normal for a drapery treatment to shrink up or stretch out 2-4 inches, so this should always be taken into account when making a hem.
- The fabric might stretch or shrink back again when weather or seasons change; however, it does not always recover.

- If a fabric shrinks, the customer hopefully has enough of a hem allowance to let it out. If this is not the case the customer will have to make a “false” hem to lengthen the treatment.
- If a fabric stretches, the customer can hem the treatment, but should not cut the fabric in case it shrinks back.

****Please Note:** It is the customer’s responsibility to make sure proper care instructions are followed. It is important to check before ironing or steaming to prevent puckering or shrinkage.

Maxguard

Maxguard is our brand name for **topical stain and water repellent finishes**. Each mill uses different chemical compositions for topical stain and water repellent finishes. To prevent confusion we use the general term “Maxguard” to describe any and all brands of stain and water repellent finishes we use .

A common finish we use is an **eco-friendly soil and stain repellent finish** which consists of C-6 Chemistry and is **PFOA/PFOC free**. There are 2 chemicals used to make up this finish: Stapel SRF and Starmine MC. It is foam applied and cured at a mill in the USA.

Another finish we use frequently is made from a Fluor carbon chemical that is **Oekotex 100 certified**. (Meaning nothing harmful to the human body is used in the chemical or process to make the chemical).

All topical water and stain repellent finishes are designed to repel liquids, meaning liquids will pearl off easily but can penetrate if left on the surface of the fabric for any extended length of time. This means that the fabric is **not water resistant but water repellent** therefore spills must be blotted up immediately.

Eco-Friendly Information

Some **new fibers** we are using at Maxwell Fabrics are “**Postindpo**” and “**PirpolyPoly**” which are post industrial recycled polyesters fibers.

- ISO 14001 Internationally accepted “eco” friendly standard for manufacturing facilities.

Oeko Tex Standard 100

The Oeko Tex Standard 100 was developed in the early ‘90s in response to customer concerns regarding **fabric which would pose no health risks**. It is a globally uniform testing and certification system for raw textile materials, and

intermediate and end products at all stages of production. Some of the regulations are as follows:

- Textiles must not contain allergenic dyestuffs and dyestuffs that form carcinogenic arylamines.
- Textiles must be tested for pesticides and chlorinated phenols
- Textiles must be tested for heavy metals
- Textiles must be free from formaldehyde
- Textiles must have a skin friendly pH, free from chloro-organic carriers.

These are technical explanations to common fabric concerns, accepted in the industry, to help you and your customers understand the performance, behavior, and characteristics of our fabrics.

All of our fabrics are tested for abrasion, tear and seam strength, light-fastness, crocking, pilling, and residential fire resistance and must pass the accepted industry standards before we put any fabric into our collection.

It is the responsibility of the designer selecting the fabric to review the product and consider the end use in order to determine which fabrics will be appropriate for their specific customer. If the designer is unsure about the performance of a specific fabric contact we recommend that they contact Maxwell Fabrics and we will be happy to provide you with all the information you should need.

Cleaning - The Basics

(more detailed instructions below)

Maxwell Fabrics always recommends professional cleaning to ensure the best care for upholstered pieces. To find a professional cleaner near you, try the following website: <http://www.certifiedcleaners.org/locator.shtml>.

- Vacuuming upholstered pieces is the best way to maintain furniture as it prevents dust from settling into the fabric. For general cleaning we suggest contacting a professional upholstery cleaning company. An area with a stain must be handled professionally. Make sure to test an "inconspicuous" area to make sure cleansing agents will not harm the fabric.

- Maxwell Fabrics always recommends professional cleaning to ensure the best handling and care of fabrics. Be sure to follow care instructions provided and make sure to test an “inconspicuous” area to ensure cleansing agents will not harm the fabric.

Caring For Upholstered Furniture

Preventative maintenance is essential for keeping upholstery looking new: vacuum it regularly and apply a commercial stain-guard treatment (e.g.: Scotch-guard) to help prevent future accidents from becoming permanent stains.

Maxwell Fabrics always recommends using a professional cleaning service to ensure best care for your expensive fabrics, however since many consumers attempt to do it themselves we have found some helpful tips. Maxwell cannot be held liable for improper care.

General Care

In the event of a spill, blot it with an absorbent towel (cloth or paper) immediately. If you take care of a spill right away, there is less chance that it will stain.

Turn over loose cushions and throw pillows every few weeks to evenly distribute the wear.

To determine what kind of stain removal method is best for your upholstery, check the cleaning instructions for one of the following letters:

“W”

Means to use a water-based or mild detergent solution and spot-clean. Use the foam only of a water-based cleaning agent to remove overall soil or stain.

****Please note:** Many household cleaning solvents are harmful to the color and life of a fabric. Cleaning by a professional furniture cleaning service is recommended.

“S”

Means to use solvent only and spot-clean in a well-ventilated room. Use pure solvents (petroleum distillate-based products: Energine, Carbona, Renuzit, or similar products can be used). Using a professional cleaning service is most recommended.

****Please note:** the use of water based or detergent based solvent cleaners may cause shrinking. Water stains may become permanent and unable to be removed with solvent cleaning agents. Avoid products containing Carbon Tetrachloride as it is highly toxic.

"SW"

Means to use either solvent or water-based cleaner. Use the foam only of a water-based cleaning agent or pure solvents in a well ventilated room.

Petroleum distillate based products: Energine, Carbona, Renuzit or similar products can be used. Using a professional cleaning service is most recommended.

"X"

Means vacuum only.

****Please note:** Never remove and wash the cushion covers, even if there is a zipper on them – the zipper is just there to make the "dressing" process easier during the furniture's manufacturing. If you have slipcovers, they should always be dry-cleaned unless they are specifically marked "washable." If they are classified as washable they must be washed at 30 degrees Celsius / 86 degrees Fahrenheit.

To Clean Your Upholstery

Remove loose cushions and throw pillows, and loosen the dirt with a handheld brush. After that, vacuum both sides of the cushions and pillows using an upholstery attachment.

Vacuum all the furniture's surfaces: the back, sides, arms, skirt, and cushion platform. Replace the cushions.

Mix ¼ cup of mild laundry detergent with one cup of water. Using an electric hand mixer, mix the solution together until it foams up and reaches the consistency of whipped cream. It should form peaks.

Before tackling a large surface area, test the cleaning solution on an inconspicuous area, such as the bottom hem of the back. If you note any discoloration, fading, or shrinking, have the job done professionally.

If the spot-test proves to be okay, it is safe to do the rest of the piece.

Dip a clean cloth in the suds, spread them over a small area, and gently rub them into the fabric. You will see dirt collecting in the suds as it is drawn out of the depths of the upholstery; use a scraper or spatula to scrape the dirty suds away.

Rinse the area with a slightly dampened cloth. Do not over-wet! Repeat in other areas until you've cleaned the entire piece.

Allow the furniture to dry overnight. If possible, aim an electric fan or two at it and let them speed the drying process.

****Please note:** When you are cleaning the fabric, be sure not to rub too vigorously or the fabric could pill.

If you have a spill that is made of grease, use a solution of 50% water and 50% white vinegar to spot-clean the area. Do not forget to test on an inconspicuous area first. Greasy stains may also respond to baking soda; sprinkle it on the stain, leave it overnight, then vacuum up the next day.

Cleaning Velvet Upholstery

Occasional vacuuming will prevent dirt from permanently embedding in the fibers.

Marking or bruising of the pile after sitting is normal and most marks will recover by themselves with time and natural humidity. Bruising that does not recover can be restored by minimal steaming and gentle brushing in the direction of the pile.

Most stains can be blotted or wiped away with a damp cloth or paper towel. Dried stains can be removed with spot cleaning. Always test an inconspicuous area first. Using soap and water or a commercial dry cleaning product, start from the outside of the stain while working your way into the middle of the stain. Once dry, brush in the direction of the pile with a toothbrush, nailbrush, or similar soft dry brush, to restore the loft and direction of the pile. Repeat the process if necessary.

Cleaning Silk Upholstery

Maxwell Fabrics always recommends professional cleaning with silk as it is almost always incorrectly cared for. However, silk is actually a very durable fiber that cleans up well. Silk is a protein fiber, and therefore shares a number of characteristics with wool, also a protein fiber, which must be considered when cleaning.

Absorbency:

Silk is not as absorbent as wool but it does absorb enough moisture and liquid spills to make spotting challenging and drying time after cleaning slower than synthetic fibers.

Chemical Sensitivity:

Like wool, silk is dissolved by chlorine bleach and harmed by high alkaline cleaning agents.

****Please note:** Silk is discolored and weakened by salt. Perspiration contains enough salt to yellow silk fabric permanently and eventually cause the fabric

to split.

Water Soluble Sizing:

Many silk fabrics are treated with sizing to give them "body" and to aid in the manufacturing process. If these sizings are water soluble, the fabric may show water marks after cleaning that could be difficult, if not impossible to remove. Spills, especially from alcoholic beverages, may also leave permanent water marks. Fabrics treated with a sizing (most upholstery/drapery silks are treated) should be dry-cleaned.

If you decide to clean silk fabrics on your own please follow the procedures listed below:

1. Pretest:

Test fabrics for colorfastness and water soluble sizing. If there is any doubt, dry clean the fabric. NOTE: Many solvent based spotters and pre-conditioners may also cause "water marking", because of their aggressive nature.

Generally, silk upholstery can be cleaned with a soft cloth dipped in a solution of cold water and mild laundry detergent such as Woolite. However, exercise extreme caution and be sure to test a small, inconspicuous area first as many types of dyed silk will discolor easily.

2. Vacuum:

Always vacuum fabric thoroughly to remove dry soil.

3. Precondition:

Avoid standard pre-spray products, as the solvent content could lead to bleeding or dissolving of water soluble resins and sizings.

4. Rinse / Extraction:

Rinse thoroughly to remove residues and restore the fabric to its original softness and texture.

5. Dry:

Never over wet silk fabrics. Speed dry with air movers. Do not use warm hair dryers as the heat may shrink the fabric.

Additional Tips and Advice for Silk Care and Maintenance.

- Be cautious not to over-wet the fabric and use moving air to quickly dry the silk.
- Do not place your silk upholstery in direct sunlight, or in close vicinity to a heating/air conditioning sources.
- Clean spills promptly, blotting at them with a firm, lifting motion; never rub the stain as this will force it deeper into the fabric.

- Never use a hair dryer to dry a wet spot or spill on silk upholstery as the heat may cause shrinkage of the fabric.
- Sometimes when cleaning silk upholstery water marks will remain that are nearly impossible to remove. If this occurs, you may want to consider using a dry-cleaning method.

Pattern Specific Care Instructions

Mellow and Metallica

****The following information are the official instructions for care and cleaning advised by the mill.**

Patterns Mellow and Metallica are machine washable in cold water on delicate cycle.

Dry iron on low to medium setting is recommended.

Please note (Metallica Only): the metallic glaze finish on pattern Metallica may be affected or removed with drycleaning. Please check with professional drycleaner before proceeding.

Windjammer

Pattern Windjammer is prone to watermarks, therefore DO NOT SPOT CLEAN, and avoid steam and other liquid sources. This fabric should be washed or dry-cleaned.

Status Symbol

To easily remove creases from pattern Status Symbol use a low-medium iron on the back side of the fabric.

Nanotex

Nanotex is a high performance textile nanotechnology that **builds permanent spill and stain protection into the fiber structure** of virtually any fabric.

- Nano-tex is a permanently bound to the fabric and able to be cleaned by almost all types of hospitality cleaners and disinfectants as opposed to other performance protectors that are applied topically to fabric and are easily dissolved and removed.
- Nano-tex is an individually bonded technology that cannot be removed from the fabric it is attached to.

Features: Spill/Stain Prevention

Benefits:

- Fabric aggressively repels liquids and stains (liquid beads and rolls off)
- Liquids can be blotted off the fabric face preventing staining
- Helps prevent staining of fabric from dirt and spills, including coffee, soda, wine, mustard, salad dressing, blood, urine, and iodine.
- Very cleanable with detergents and solvents. 15% diluted bleach solution can be used with solution-dyed fabrics (Home & Garden Indoor/Outdoor Performance Fabrics).

Performance:

- Maintains the fabric's natural hand
- Enhances abrasion on almost all textiles
- Highly breathable and comfortable
- Lasts the life of the fabric
- Durable to laundering: tested up to 50 commercial washings

Environmentally Friendly:

- Nano-Tex is recyclable and does not affect a fabric's ability to be recycled
- No Formaldehyde. No PFOA. No VOC's
- MBDC environmental certification
- Tested and passes Oeko-Tex Standard 100

Passes NFPA 701:

- Most all inherently fire resistant fabrics which pass NFPA 701 prior to any treatment, also pass NFPA 701 after the application of Nano-Tex
- Fabrics can also be protected with a fire-retardant and Nano-Tex to meet specification needs.

Applications:

- For hospitality, healthcare, corporate, education, entertainment and residential use.
- Used for upholstery, cubical, drapery, bedding, panel fabrics and wall

- coverings
- Can be combined with other fabric finishes such as antimicrobial, FR treatments and all backings.

Nanotex Cleaning and Care Instructions

Don't wait! The best way to protect fabrics is to remove spills and stains from them as soon as possible. Nano-Tex minimizes staining in protected fabrics, but cleaning may still be necessary. Remove spills immediately to make sure there will be minimal to no staining on the fabric. But don't worry; if spills go unnoticed for a while, Nano-Tex will make sure that your fabric cleans quickly and, above all, easily. Just follow the instructions below:

- Clean **liquid spills** quickly with a clean, dry cloth. Gently blot (don't rub) the spill immediately with an absorbent cloth while spill is still fresh.
 - Wipe off with clean water and a clean, dry cloth if needed.
- For **semi-solid spills**, try to lift the spot off of the fabric:
 - Working in a circular motion or removing the spill from the side is often the best means to lift spills from the fabric.
 - Change towel surface frequently until spot has been transferred off of the fabric and onto the absorbent cleaning cloth. Try to avoid pressing the spill or spreading the stain.
 - Wipe off with clean water and a clean, dry cloth if needed.
- If a spill does not come off with water and a clean, dry cloth, add a mild detergent mixed with water and repeat circular motion. Mild detergents such as Sport Wash, Tide Free, or Cheer Free work best.
- If a stain remains, a solvent may be needed to remove the stubborn stain. It is recommended to use odorless mineral spirits, dry cleaning fluid such as perchloroethylene, or Fantastik Orange Action All Purpose Cleaner. Bleach can also be used on solution-dyed fabrics. Wipe off with water and a dry clean cloth. Do not rub harshly. The harder you rub when cleaning a spill, the deeper the soil can be pushed into the fibers.
- Remove all soap or cleaning agent residue from the surface with clean water.

Nanotex Cleaning Performance Results

- Cleaning tests were performed after a stain was left to sit and set for 24hrs.
- For best cleaning results we recommend cleaning immediately.

Cleaning instructions and Result scale:

- Remove Excess liquids with a dry towel. Remove excess solids by scraping or brushing with a soft bristle brush. If the stain is completely removed after this they are considered to be a Grade 5.
- If pre-cleaning does not completely remove the stain then the fabric may be cleaned with the following: a) water; b) water-based detergent; or c) solvent cleaner. Fabric is then graded according to the following scale:

Results/Grade Descriptions:

Grade 5 = No stain. Not objectionable in any way.

Grade 4 = Slightly stained. Visible under close observation but not visible to casual observer.

Grade 3 = Noticeably stained. Visible to casual observer and may be objectionable.

Grade 2 = Considerably stained. Clearly visible and probably objectionable.

Grade 1 = Heavily stained. Clearly visible and definitely objectionable.

	100% POLYESTER &POLY BLENDS	100% NYLON & NYLON BLENDS	WOOL BLENDS	RAYON BLENDS	COTTON BLENDS
Iodine	4.5	4.5*	4.5	5	4.5
Hot Coffee	4.5	4.5	4.5	4.5	4.5
Room Temp Coffee	4.5	4.5	4.5	4.5	4.5
Blood	4.5	4.5	4.5	4.5	4
Urine	4.5	5	4.5	5	4.5
Ink	4.5	4.5	4.5	4.5	4.5
Mustard	5	5	5	5	5
Salad Oil	4.5	5	4.5	4.5	4.5
Red Wine	5	5	4.5	5	5

Independent lab results for 24-hour cleaning results, averaged across fabric families with Nano-Tex®

* Iodine on solution dyed nylon tested at 5 minutes

Laboratory testing shows that the DuraBlock™ liquid barrier does not deteriorate when exposed to a variety of cleaners, including Formula 409 all-purpose cleaner undiluted, Precise™ hospital cleaner, 3% Woolite® solution, 10% bleach solution (for fabrics that are bleach cleanable)

Sourcing Information

The fabrics in both our Maxwell line and Telafina collections are priced based on the true value of fabric. We have been able to keep a tight control on pricing by working just a bit harder and staying in tune with the market place. There have been interesting changes in our entire industry over the past 5 -10 years that make this possible; fascinating changes many may not be aware of.

There has been major economic and industrial growth in Turkey and India. India specifically is one of the fastest growing economies in the world and has always had a major textile industry. Indian and Turkish mills have made major advances in textile production by purchasing high tech weaving looms and design technology from countries traditionally known for high end textile production, such as Belgium and Italy, where it has now become far too expensive to produce profitable fabrics. European countries have partnered up with major mills in India and Turkey to produce their signature qualities and styles at a lower cost. The result has given us a competitive edge by allowing production of top quality fabrics to be manufactured on European looms at lower cost of currency.

This information is to help you understand the facts about manufacturing in our industry. The mills in Turkey and India we work with use high tech design equipment and state of the art machinery in pristine working conditions. Textile production is a major industry for these countries and should no longer be considered 3rd world production. You need to know these facts in order to change your mentality about buying product from these countries and therefore educate your customer.

*NOTE: Often times a pattern is designed, developed, colored, and tested in one specific country ie: Belgium or Italy, and then milled/woven in another ie: India or Turkey, due to the cost of production and labor. Most often we are buying and creating with a European company that must then outsource production due to the currency value and labor costs in that specific country. Please understand this is the reason for discrepancies in Country of Origin.

Glossary of Fabric Terms

This list has been created as a helpful tool to increase our customer's knowledge of the fabrics that are available through Maxwell Fabrics. If you feel that any particular term is missing, or if you have any questions or comments about any fabric terminology, please feel free to contact us at fabrics@maxwellfabrics.com or 800-663-1159.

Batiste - a fine soft, plain weave fabric traditionally made from linen, now often made with synthetic fibers.

Boucle - means curled, ringlet or buckled fibers.

Brocade - richly decorative shuttle woven jacquard fabric traditionally made in multi-colored silks but now often created with polyester yarns. The intended appearance is to look as though the weave was actually embroidered on.

Calico - is a type of fabric made from unbleached, and often not fully processed, cotton.

Cellulose - this fiber is processed to make cellophane and rayon.

Chenille - refers to the French word for caterpillar. Many fabrics such as mohair and wool get their names from the fibers with which they are made. Chenille, however, is named from the unique process in which it is made. The chenille yarn is manufactured by placing short lengths of yarn, called the pile, between two core yarns and then twisting the yarn together. The edges of these piles then stand at right angles from the yarn's core, giving chenille both its softness and its characteristic look. Chenille will look different in one direction compared to another as the fibers catch the light differently.

Chintz - is calico cloth printed with flowers and other devices in different colors.

Damask - jacquard woven figured fabric, originally a single color, where the figure and ground are in contrasting weaves, generally warp satin and weft sateen. Traditionally used for expensive table linen, now also used for fashion and sometimes made using more than one color. Damasks generally denote a linen texture richly figured in the weaving with flowers, fruit, forms of animal life, and other types of ornament.

Epingle - a type of velvet fabric woven on a wire loom called the epingle loom. The epingle velvet is specific by the fact that both loop pile and cut pile can be integrated into the same fabric. The fabric finds its application mostly in upholstery, although in medieval times was used as apparel for princes and kings as well as for bishops, cardinals and the pope.

Filament fiber - a fine, thinly spun thread, fiber, or wire.

Flax - fiber is soft, lustrous and flexible. It is stronger than cotton fiber but less elastic. The best grades are used for linen fabrics such as damasks, lace, and sheeting. Coarser grades are used for the manufacturing of twine and rope.

Ikat/Batik- a style of weaving that uses a resist dyeing process similar to tie-dye to create a pattern or design. Ikat was traditionally made in cultures all over the world; most commonly in India, Central Asia, and South East Asia, while still very popular in Central and South American countries such as Argentina, Bolivia, Ecuador, Guatemala and Mexico

Jacquard – a jacquard is the type of weave used to create a different color or texture in the figure or design from the base. A jacquard loom is used to manufacture textiles with complex patterns such as brocade, damask, and matlisse.

Jute - is a long, soft, shiny plant fibre that can be spun into coarse, strong threads. Jute is one of the cheapest natural fibers, and is second only to cotton in amount produced and variety of uses. Jute fibers are composed primarily of the plant materials cellulose and lignin.

Linen - is a material made from the fibers of the flax plant.

Microfiber - refers to synthetic fibers that measure less than one denier. The most common types of microfibers are made from polyester. The shape and size of synthetic fibers are selected for specific characteristics, including softness, durability, absorption, wicking abilities, and water repellency.

Mohair - is made from the hair of the Angora goat. It is durable, light, warm, and naturally fire resistant.

Moiré - means watered. The design is obtained by passing through engraving rollers, producing crushed watermark patterns that reflect light differently. Used most often on ribbed fabrics made with cotton, viscose, rayon, or silk.

Nylon - is a synthetic polymer, a plastic. Nylon fibers are used to make many synthetic fabrics, however it does disintegrate in the sun over time.

Ombré - gradual changes in shade from light to dark or from one color to another.

Paisley - is a tear drop shaped motif similar to half of the Yin-Yang symbol. The design is Persian and Indian in origin, but spread to Scotland when British

soldiers brought home cashmere shawls. The name "Paisley" comes from the town of Paisley in central Scotland.

Plain weave - is also called a taffeta weave; it is the most basic of 3 fundamental types of textiles weaves. It is strong and hardwearing. The warp and weft are aligned so they form a simple criss-cross pattern. Each weft thread crosses the warp threads by going over one, then under the next, and so on. Basket weave is a variation of plain weave in which two or more threads are bundled and then woven as one in the warp or weft or both. Plain weave examples: chiffon, organza, and taffeta. Satin weaves, Twill weaves, and plain weaves are the 3 basic types of weaving by which the majority of woven products are formed.

Rayon - is a transparent fibre made of processed cellulose. Cellulose fibers from wood or cotton are dissolved in alkali to make a solution called viscose, which is then extruded through a nozzle, or spinneret, into an acid bath to reconvert the viscose into cellulose

Sateen - the sheen and softer feel are produced through the use of a different structure in the weaving process. The sateen structure is four over, one under, placing the most threads on the surface, making it extremely soft, though slightly less durable than other weaves. Standard, non-sateen, weaves use a one over, one under structure. Satin also uses this structure, however, instead of using cotton, different materials are used (e.g., silk, polyester, etc). Sateen is a fabric formed with a satin weave where the floats are perpendicular to the selvage of the goods.

Satin - a weave that typically has a glossy surface and a dull back. It is a warp dominated weaving technique that forms a minimum number of interlacings in a fabric. If a fabric is formed with a satin weave using filament fibers such as silk, nylon, or polyester, the corresponding fabric is termed a *satin*. If the yarns used are short staple yarns such as cotton, the fabric formed is considered a *sateen*.

Satin Weave - characterized by four or more fill or weft yarns floating over a warp yarn or vice versa; four or more warp yarns floating over a single weft yarn. The satin weave is distinguished by its silky appearance and even surface sheen. Satin weaves, Twill weaves, and plain weaves are the 3 basic types of weaving by which the majority of woven products are formed.

Taffeta - a crisp smooth woven fabric made from silk or synthetic fibers.

Tapestry - a form of textile art. It is woven by hand on a weaving-loom. The chain thread is the carrier in which the colored striking thread is woven. In this way, a colorful pattern or image is created. Most weavers use a naturally based chain thread made out of linen or wool. The striking threads can be

made out of silk, wool, gold or silver, but can also be made out of any form of textile.

Terry cloth - a type of cloth with loops sticking out. Most bath towels are examples of Terry cloth.

Thread count - the number of warp threads per inch plus the number of weft threads.

Tulle - a type of netting, which is often starched, made of various fibers, including silk, nylon, and rayon, that is most commonly used for veils, gowns (particularly wedding gowns) and ballet tutus.

Tweed - a type of fabric using the twill weave.

Twill weave - a type of fabric woven with a pattern of diagonal parallel ribs. It is made by passing the weft threads over one or more warp threads and then under two or more warp threads and so on with a "step" or offset between rows to create the characteristic diagonal pattern. Because of this structure twills generally drape well. Examples of twill fabrics are chino, denim, gabardine, tweed. Twill fabrics technically have a front and a back side, unlike a plain weave, where the two sides are the same. Satin weaves, Twill weaves, and plain weaves are the 3 basic types of weaving by which the majority of woven products are formed.

Ultra suede - made using microfibers developed using a continuous ultra fine filament fiber. Fabrics are made with microfibers to mimic the look of suede, velvet, and chenille, but are less expensive, stronger, and easier to care for since these fibers repel stains well and are easy to clean.

Velour - a plush, knitted fabric or textile often used in clothing due to its stretchy properties.

Velvet - a cut warp-piled fabric in which the cut fibrous ends of the yarns form the surface of the fabric. Many effects are possible, e.g.: the pile may be left erect, or it may be laid in one direction during finishing to give a very high luster.

Viscose - a man-made natural polymer regenerated cellulose fibre. Viscose is sometimes used as a synonym for Rayon

Voile - a plain weave, semi-sheer, lightweight fabric made with fine, fairly highly twisted yarns. Originally made from cotton, but now often made with synthetic fibers.

Warp - the set of lengthwise threads attached to a loom before weaving begins, and through which the weft is woven.

Weft - the yarn that is woven back and forth through the warp to make cloth.

Yarn - a long continuous length of interlocked fibers, suitable for use in the production of textiles, sewing, crocheting, knitting, weaving and rope-making. Yarn can be made from any number of synthetic or natural fibers.

Thank you for utilizing our Glossary of Fabric Terms. If you would like us to add a term, or if you have any questions or comments about any fabric term listed here, please do not hesitate to contact us at fabrics@maxwellfabrics.com or 800-663-1159.

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