

## SOLUTION DYED NYLON

### WHAT IS NYLON?

In 1930, DuPont chemists were hard at work doing basic research on polymers. Polymers are large molecules composed of relatively small molecules linked end to end. The chemists found that when a glass rod in contact with a certain molten polymer was pulled away slowly, a fine threadlike filament was formed. The fiber was given the generic name “Nylon” and was first marketed in 1938.

Nylon is used in a wide variety of interior textiles, including floor coverings and upholstery fabrics. It is often blended with other fibers to give the resulting product greater strength. A common example of this is wool/nylon blended carpets and fabrics.

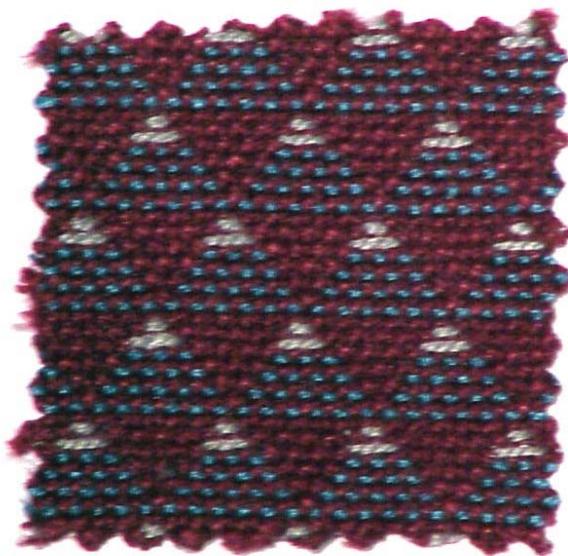
Nylon fabrics are relatively easy to maintain, unless there are other dye or construction related concerns. One of the most important maintenance considerations for nylon fabrics is the method used to dye the fabric. Nylon can be dyed by conventional dyes, much as other fibers are dyed, or it can be solution dyed.

### WHAT IS SOLUTION DYEING?

Unlike the common dye methods, which add color to the fiber at some point after the fiber is actually manufactured, solution dyeing adds color to the molten polymer before the fiber is extruded. The coloring chemicals used for this method are called pigments. They are not true dyes since they are generally not soluble in water or other solvents typically used in dyeing.

Any fiber that is formed from a solution (e.g., acetate, rayon, nylon, acrylic, polyester and polypropylene) can be solution dyed.

Because the coloring pigment is evenly distributed throughout the solution dyed fiber, this type of nylon is inherently more colorfast than conventionally dyed nylon. The fabric is more resistant to fading from sunlight and atmospheric pollutants and can be spot-cleaned with chemicals that might normally be considered unacceptably harsh, such as diluted sodium hypochlorite (household bleach). (Careful pre-testing is always advisable.) The sample below is a solution dyed nylon fabric.



### POTENTIAL PROBLEMS

Solution dyeing does improve colorfastness properties, but it does nothing to retard staining. As a matter of fact, there have been instances where stains such as coffee

have been extremely difficult to remove from solution dyed nylon.

There is a theory for why this staining could be so tenacious on solution dyed fibers.

Nylon fibers have certain sites at which dyes can attach themselves. In conventional dyeing, a certain number of these dye sites on the fiber surface are occupied by dye molecules. The darker the shade, the more dye sites that are occupied. In solution dyed fibers, however, there are no dyes involved. Hence, there are more dye sites available to react with staining substances.

## **SPOT CLEANING**

As mentioned previously, spot cleaning efforts on solution dyed nylon can be aided by the use of somewhat stronger chemicals. Diluted solutions (10-20%) of household bleach or other reducing agents are likely to be safe for use on these fabrics. Though full strength bleach on an inconspicuous area of the fabric is a good way to test, this solution is not recommended for use as a spot cleaner because it can actually weaken the nylon fiber or any backcoating which might be present.

Mild to moderate acid and alkalies will not harm solution dyed nylon. All of the

common dry-cleaning solvents (OMS, acetone and chlorinated solvents) are also generally safe to use. As always, be careful when dealing with backcoatings that can be loosened or dissolved by dry-cleaning solvents.

## **OVERALL CLEANING**

As with other types of nylon, solution dyed nylon can be cleaned using either wet or dry methods. There is no concern with bleeding from water or alkaline detergents. The overall cleaning results expected from these fabrics are good.

## **ON THE BRIGHT SIDE**

Solution dyed nylon fabrics are well suited for installations that must stand up to above-average wear and tear. Protective treatments with fluorochemical resins can increase the stain resistance of these fabrics. Most important, a service program can help maintain an acceptable level of appearance for many years.

**AS WITH ALL FABRICS AND FINISHES...  
ALWAYS TEST CHEMICALS AND  
PROCEDURES FIRST IN AN  
INCONSPICUOUS AREA OF THE FABRIC.**