Fighting Textile Stains
By J. Michael Quante

Stains can ruin the appearance and usefulness of a fabric early in its life cycle. Fabric treatments that enhance stain resistance offer a value-added benefit attractive to consumers.

Different approaches to fighting stains depend on the fabric type—water loving (e.g., cotton), oil loving (e.g., polyester), or blends. Here are some basic questions to ask before choosing a stain resistance finish for your product.

What Finishes Are Available?
The two major approaches to improving fabric stain resistance are stain repellency and soil release. Stain repellency helps keep stains off the fabric. Soil release makes removal of stains easier. Resist/release finishes are also available that take advantage of both properties.

How Are Fabrics Used?
If the fabrics are used for apparel, they will likely be laundered. Fabric treatment with a soil release finish works by helping laundry detergent do its job to remove stains. Therefore, soil release finishes are often used with apparel and not with, for example, carpets, which are not laundered.

What About Environmental Impact?
Many stain repellent finishes contain fluorocarbon components. C8 fluorocarbons have been the most popular because of their superior repellency properties. However, their manufacture produces byproducts thought to be harmful to ecosystems and health. Safer alternatives are now becoming available.

Can Good Durability be Achieved?
Modern stain resistant finishes provide adequate protection for up to about 30 laundering cycles. With new technologies, durability of up to 50 laundering cycles has been achieved.

What Test Methods Can be Used?
Several test methods (TMs) can be used to evaluate these properties. These include the following:

Some Stain Resistance and Soil Release Test Methods
AATCC TM 118 Oil Repellency: Hydrocarbon Resistance Test
AATCC TM 130 Soil Release: Oily Stain Release
Method

AATCC TM 193 Aqueous Liquid Repellency: Water/Alcohol Solution Resistance Test
3M Water Repellency Test II- Water/Alcohol Drop Test

For a detailed summary of anti-staining strategies in textile manufacturing, see Maria Thiry’s November 2005 AATCC Review article “A Stainless Virtue,” available to AATCC members online. Information on finishing methods for stain resistance can be found in “Chemical Finishing of Textiles,” by W. D. Schindler and P. J. Hauser (Woodhead Publishing Ltd., 2000).