

PROBAN® Flame Retardant Fabrics -The Facts

What is the PROBAN® process ?

First developed in the 1950s, the PROBAN® chemical is used to impart a durable flame retardant treatment to cotton and other cellulosic fibres and blends. Durability is achieved by the formation of a cross-linked inert polymer within the fibre. Because there is no chemical reaction with the fibre the physical properties of the base fabrics are largely unaffected. The PROBAN® process is used only by textile finishers licensed by Rhodia Consumer Specialties and is usually applied to bulk fabrics before making up. The process can be successfully applied to woven or knitted fabrics across the full range of fabric weights and constructions.

Where are PROBAN® fabrics used ?

The earliest application of PROBAN® treated cotton fabrics was in childrens nightwear. The use of PROBAN® fabrics has broadened considerably, and PROBAN® treated fabrics satisfy a number of new requirements and continue to be used extensively in childrens sleepwear markets. Today, PROBAN® treated fabrics can be found in a wide range of personal protective clothing applications across a number of end user sectors including industrial, military and civil applications. The adoption of PROBAN® fabrics in wildland fire fighting, has been a major new growth area. PROBAN® fabrics continue to be used as bedding and furnishings, including curtaining, in hotels, public buildings and institutions such as hospitals and old people's homes. Many of these applications continue to maintain growth. Nowadays PROBAN® treated fabrics are used throughout the world wherever there is a risk of fire.

How are PROBAN® treated fabrics affected by flame?

PROBAN® treated fabrics decompose under the influence of a flame to form a localised insulating char which stays in place and helps to protect the wearer or acts as a barrier in other applications. PROBAN® treated fabrics do not smolder, have no afterglow and flame does not spread outside the charred area. Unlike some other flame retardant systems. PROBAN® treated fabrics do not melt away to form a hole through which the flame can penetrate nor do they form hot sticky residues which can adhere to the skin of the wearer.



What combustion products are given off?

Chemical analysis of the combustion products of PROBAN® treated fabrics has shown that the components are not significantly different from those produced by the combustion of untreated cotton fabrics.

Are the flame retardant properties affected by laundering ?

The flame retardant properties will be retained for the useful life of any article made from PROBAN® treated fabrics provided recommended wet laundering or dry cleaning procedures are followed.

Soap powders, and other strong oxidising agents such sodium hypochlorite should be avoided. The repeated use of hot hydrogen peroxide solutions particularly in the presence of metal ions should be avoided. Detergents containing high levels of sodium perborate should not be used in combination with hard water.

Synthetic detergents including biological detergents should be used. Weak solutions of cold or warm hydrogen peroxide and hot washing in soft water with detergents that contain high levels of sodium perborate can be used. The PROBAN® label, which is attached to all articles made from PROBAN® treated fabrics, quality controlled and certificated by Rhodia Consumer Specialties Limited gives basic advice on fabric care. More detailed laundering instructions are available from the Technical Service Department of Rhodia Consumer Specialties Limited Technical.

What happens if PROBAN® treated fabrics are washed with soap rather than detergent?

In hard water there is a build-up of flammable calcium soap deposits which may mask the flame-retardant properties of the fabric. These deposits can often be removed in commercial laundering by a weak acid rinse using acetic acid followed by neutralization. For domestic washing synthetic detergents must be used. Most products found on today's supermarket shelves are formulated with synthetic detergents and not soap but in cases of doubt contact Rhodia Consumer Specialties Limited Technical Service Department.



What is the effect of bleach on PROBAN® treated fabrics?

Hypochlorite bleach must not be used; it chemically attacks the PROBAN® finish and reduces the flame-retardant properties of the fabric. A single accidental application of dilute hypochlorite bleach will not destroy the flame retardancy.

Dilute cold or warm hydrogen peroxide bleaches may be used for stain removal provided bleaching is not carried out on every laundering cycle.

Sodium perborate when present in high concentrations in detergent formulations may also cause a gradual deterioration in fabric flame-retardant performance especially if washing is carried out repeatedly at high temperatures in hard water.

Do biological stains effect have an effect PROBAN® treated fabrics?

Biological staining has no effect on the flame-retardant performance of PROBAN® treated fabric. Stains can be removed in the normal way by presoaking with biologically active detergent formulations and washing, or through the occasional use of dilute hydrogen peroxide bleach.

Can PROBAN® treated fabrics be boiled?

PROBAN® treated cotton may be boiled, although boiling should not be necessary for cleansing or disinfection if the correct laundering procedures are followed. The PROBAN® flame retardant finish does not affect the natural properties of cotton fabrics and wash temperatures appropriate for cotton should be selected to avoid excessive shrinkage or shade change.

Can PROBAN® treated be dry-cleaned?

The flame retardant properties of PROBAN® treated fabrics are unaffected by commercial dry cleaning solvents. It is important that the dry cleaning process is effective in removing all contaminants. Inefficient dry cleaning may lead to a build-up of water soluble deposits, which could mask the flame-retardant properties of the fabrics. However, experience has shown an occasional wet laundering will eliminate this problem.



Are PROBAN® treated fabrics safe?

PROBAN® treated fabrics have been found to be safe to use since they were first introduced almost 50 years ago. Many studies have been undertaken, both by Rhodia Consumer Specialties Limited and independent organisations, to determine the toxicological properties of the PROBAN® polymer and of PROBAN® treated fabrics.

These studies have established, that if taken internally, the PROBAN® polymer is as harmless as common salt or sodium bicarbonate.

Detailed skin irritation studies using human volunteers have also established that PROBAN® treated fabrics do not irritate the skin or produce hypersensitivity. In almost 50 years of widespread use in many environments and many countries, there have been no skin irritation related, or other human health problems reported as being attributable to the PROBAN® flame-retardant finish.

Should any further information be required please contact our Technical Service Department at the address below:

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