ELLIOTTS

bsi. ISO 9001 Quality Management Systems CERTIFIED FS 740782

Material Data Sheet

Proban®

Proban® is a 100% cotton fabric treated with the Proban® a durable reliable flame retardant finish.

Fabric Specifications	
Property/Test Method	**Result**
Colour	TBC
Weight g/m²	488
Weave	Broken Twill
Composition	100% Cotton
Treatments	Proban® Durable Flame-Retardant Treatment
Garments produced from PROBAN® fabrics meet the requirements of • EN ISO 11611 Protective clothing for use in welding and allied processes. • ISO 9150 – protective clothing – determination of behaviour on impact of small splashes of molten metal. • ISO 6942 set for class 1 and class 2 levels (provide good protection against heat and transfer radiation) • EN 1149-2 when tested using the modified test atmosphere specified in EN ISO 11611	

Applications
Garments made with PROBAN® fabrics are light, flexible and provide comfortable protection against heat and flame; electric arc and splashes of molten metal. Industry applications include: Oil & Gas, Welding, Metal Working, Electrical & Maintenance Utilities and General Worker Applications.

Washing instructions

Machine washable, dry clean with tetrachloroethylene and monofluor-trichloromethane, iron max temperature 110 °C, tumble dry normal, medium heat.

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What is PROBAN®?
PROBAN® is a quality controlled technological process that gives cotton and cotton rich woven and knitted textiles flame retardant properties that are durable to long term use. Articles manufactured from PROBAN® fabrics provide reliable flame retardant performance and peace of mind to industrial, institutional and end-consumers through-out the world while conforming with industry fire regulations.

Lifelong Protection
PROBAN® finished fabrics retain their flame retardant properties for the lifetime of the garment. Fabrics acquire their flame retardant properties from the polymer which is embedded into the fabric.

Flame Performance
When exposed to flame, PROBAN® fabrics form an insulating char which stays in place and helps protect the wearer. PROBAN® fabrics do not smoulder, have no afterglow, do not melt and the flame doesn't spread outside the charred area.

Features of PROBAN® Fabrics	Benefits to the Wearer
Manufactured by an approved network of PROBAN® licensees appointed by Solvay	Reliability and consistency in performance.
Durable flame retardant finish	Cost effective protection that will last the lifetime of the manufactured article.
Strict ISO accredited quality control programme, independent of the Licensees production site	Reliability of flame retardant performance and end user safety. Independent testing provides reliable safety and protection for end users.
Cotton and cotton rich woven and knitted fabrics	Comfortable to the wearer in all climates and working conditions. Manages heat and moisture well.

Safety First
Whether you are an end-product manufacturer, institutional specifier or a health and safety manager, you want to be sure that you can depend on the protection that you are offering. All PROBAN® fabrics manufactured by Solvay's appointed licensees are tested at our UKAS ISO 17025 accredited facilities to ensure they meet the fire safety performance level specified for each foreseen end use area. PROBAN® workwear fabric is the only brand which provides regular and independent testing of flame retardant properties in combination with multiple washing and drying cycles, which simulate actual industrial washing conditions.

Safe to Wear
The PROBAN® polymer has been included in the Oeko-Tex list of approved chemicals. PROBAN® fabric suppliers can have fabric tested for OEKO-TEX® standard 100 'Confidence in Textiles' which certifies the skin friendliness of the end articles. OEKO-TEX® testing for harmful substances always focuses on the actual use of textile: "The more intensive the skin contact of a product, the stricter the human ecological requirements to be met. PROBAN® fabrics are halogen free and contain no antimony.

CONFIDENCE IN TEXTILES Tested for harmful substances according to Oeko-Tex Standard 100 No. SHHO 063619 TESTEX Zürich

EU Ecolabel www.ecolabel.eu

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With PROBAN® your reputation is in safe
PROBAN® fabrics are manufactured on a strict quality controlled basis, through appointed licensed textile finishers, whom Solvay recognizes as having the necessary technical skills. Licensees submit representative samples from each production run to Solvay for limited flame spread testing carried out after extensive durability washing to ensure that each production run meets the high PROBAN® standards. If samples meet the appropriate requirements, test certificates are issued. One copy is issued to the end article manufacturer who can then apply for genuine PROBAN® labels. Only garments or flame retardant fabrics that display genuine PROBAN® labels can guarantee protection. You and your workforce may be at risk if you don't insist on the official PROBAN® brand.

PROBAN® Durability
PROBAN® fabrics are manufactured not only to protect the wearer from fire, but to ensure they offer protection for the lifetime of the article. Part of the licensee agreement means fabrics are also tested for their wash durability. When caring for your PROBAN® treated articles avoid using chlorine bleaches, strong oxidizing agents.

How are PROBAN® Treated Fabrics Affected by Flame?
PROBAN® treated fabrics form a protective insulating char, when exposed to a flame, which stays in place and helps to protect the wearer. PROBAN® treated fabrics do not smoulder, have no afterglow, do not melt and the flame does not spread outside the charred area.

Welding
PROBAN®: The best available technology to protect against exposure to small droplets of hot metal or welding splatter. Garments produced from PROBAN® fabrics meet the requirements of • EN ISO 11611 Protective clothing for use in welding and allied processes. • ISO 9150 – protective clothing – determination of behaviour on impact of small splashes of molten metal. • ISO 6942 set for class 1 and class 2 levels (provide good protection against heat and transfer radiation) • EN 1149-2 when tested using the modified test atmosphere specified in EN ISO 11611 PROBAN® fabrics provide a high level of protection against UV radiation. This includes UVC which is emitted during modern welding techniques such as TIG, MIG, and Mig-Mag. Prevention of the penetration of the UV radiation through clothing is related to fabric construction (tightness of the weave) and fabric weight.

Metal Working
PROBAN® fabrics provide protection from splashes of molten metal. Garments produced from PROBAN® fabrics meet the requirements: • EN ISO 11612 Protective clothing – Clothing to protect against heat and flame • ISO 9185 Molten iron splash (Code letter E) PROBAN® fabrics should not be used for protection from exposure to molten aluminium splash (Code letter D) Mechanism: PROBAN® fabrics are self extinguishing, and thus prevent the spread of flame created by an ignition source. PROBAN® fabrics retain their integrity by forming a strong carbon char which prevents the transfer of heat from an ignition source passing through the clothing. The char forming mechanism of Proban® fabrics acts as a barrier to the transfer of heat from an ignition, thus significantly reducing or eliminating, burn injury.

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Oil and Gas
Garments made with PROBAN® fabrics are light, flexible and provide comfortable protection against exposure to radiant and convective heat and flame. Garments produced from PROBAN® fabrics are widely adopted by the Oil and Gas industry. They exhibit the following key features: • Self Extinguishing • Low capacity for absorbing and retaining heavy oils and other aromatic substances Multi performance PROBAN® fabrics offer protection against heat and flame in combination with anti-static properties. Garments produced from PROBAN® fabrics for Oil and gas including workers exposed to heat and flame risk in gas utility services can meet the requirements: • EN ISO 11612

Electrical and Maintenance Utilities
PROBAN® fabrics give excellent protection against exposure to electric arc. Garments produced from PROBAN® are suitable for use where employees work on or near energised electrical conductors and similar equipment or installations. PROBAN® fabrics meet the requirements of: • ASTM D-1959 – exposure performance to an electric arc • NFPA-70E – electrical safety requirements for employee workplaces • 2002 National Electric Code (NEC) • IEC 61482-1-1 open arc test method • IEC 61428-1-2 electric arc box test • ASTM F 1506: - Single layer PROBAN® fabrics of 237gsm or heavier can meet the requirements of Hazard Risk Category 2 (HRC 2). Heavier weight single layer woven and knitted PROBAN® fabrics can achieve Hazard Risk Category 3 (HRC 3). - Multi layer PROBAN® fabric meets high risk category 3 and 4.

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General Worker Applications
Protection against exposure to heat and flame Garments made from PROBAN® fabrics meet the requirements of EN ISO 11612 Protective clothing – clothing to protect against heat and flame. PROBAN® fabrics composed of 100% cotton or cotton rich blends of cotton with either polyester or polyamide are ideal for general worker applications where there is exposure and a risk of contact with sources of heat or flame. A wide range of woven and knitted fabric constructions are available. End articles produced from Proban® fabrics are flame resistant and self extinguishing, preventing the spread of any initial source of ignition. The char forming mechanism of PROBAN® fabrics provides a barrier to the transfer of heat from an ignition, thus significantly reducing or eliminating, burn injury. Multi-functional performance: PROBAN® fabrics having multi-functional performance which provide flame resistant protection and additional protective properties against specific industry and end use hazards are available in a range of fabric constructions and weights. Multi functional performance fabrics include: • Flame resistant and water and oil repellent. • Flame resistant and anti-static (EN 1149-5). • Flame resistant and electrical resistance (EN 1149-2). • Flame resistant and high visibility (EN 471) • Flame resistant and aluminised (high radiant heat reflectance properties) Using a layered approach, PROBAN® fabrics provide a low price option for Chemical, Biological, Radiation and Nuclear (CBRN) protection suits.

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Chem-Tech® Chemical Splash Protective Clothing

Performance/Test Data		
Compliance or Certification	**Chem-Tech**	**FRAS**
High Visibility AS4602.1999 High visibility safety garment EN471:2008 High visibility clothing for professional use	Certified compliant	Certified compliant
Anti Static EN1149-1:1995 Surface Resistivity of Fabric test method	NA	Compliant 1.4 X 109 Ohms
Flame Resistance AS2755.1-1985 Textile fabrics - Burning behaviour Determination of ease of ignition of vertically oriented specimens	NA	No ignition

Liquid Chemicals

AS/NZS ISO 6530-2006 Protection Against Liquid Chemicals

This ISO internationally-recognised test performance method is a measurement of chemical penetration, absorption and repellency for chemical fabrics and materials.

Test Liquid	%	Penetration		Repellency		Absorption	
		Length	Width	Length	Width	Length	Width
Hydrochloric Acid	37	0.0	0.0	91.2%	90.7%	3.4	3.4
Sodium Hydroxide	40	0.0	0.0	98.4%	99.2%	0.46	0.5
Jet Fuel A1	100	0.0	0.0	75.6%	75.0%	16.2	18.1
Sulphuric Acid	98	0.0	0.0	96.3%	96.9%	4.0	3.83
Nitric Acid	50	0.0	0.0	91.7%	91.3%	4.6	4.6

AS3765.1:1990 Resistance to Liquid Penetration (General Purpose) Appendix A – AS3765.1 testing is terminated at 60min	Sulphuric Acid 98%(conc) Nitric Acid 40% Sodium Hydroxide 12.5M Toluene Tetrachloroethylene	>60 minutes >25 minutes >60 minutes >30 minutes >15 minutes
GB12012-1989 *Further testing was completed to GB12012-1989 by a Certified Chinese Laboratory to determine extended resistanc times.*	Sulphuric Acid 98% Nitric Acid 40% Hydrochlic Acid 30%	>180 minutes >160 minutes >157 minutes