

MICROGARD® FR



Applications

- Oil and petrochemicals
- Petroleum distribution and processing
- Utilities



MICROGARD® FR is a flame retardant material designed to be worn over woven thermal protective garments such as **NOMEX®** or **PYROVATEX®**, offering protection from particulates and light liquid splash without compromising worker protection in the event of a flash fire*.

Features & Benefits

Protection - Flame retardant treated Sontara/wood pulp/polyester fabric with good barrier to particulates and low level liquid spray

Comfort - Air and water vapour permeable ('breathable') to help reduce the risk of heat stress

Optimized Body Fit - Improves wearer comfort and safety

*Must be worn over thermal protective garments, such as **NOMEX®** or **PYROVATEX®**, and never be worn next to the skin.



MICROGARD® FR

MICROGARD® FR will not compromise wearer protection in the event of a flash fire.

MICROGARD® FR offers wearers protection from liquid chemicals to EN Type 6 and particulates to EN Type 5, and peace of mind to workers in potentially explosive/flammable environments. To decrease the risk of burn injury wear over thermal protective workwear*

In addition to its excellent FR properties, the fabric used in the manufacture of MICROGARD® FR is designed to allow water vapour (perspiration) to escape from the suit (water vapour resistance, Ret** = < 5), helping to reduce the risk of heat stress.

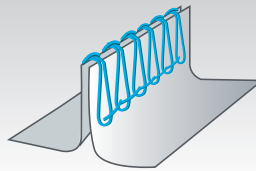
Wear over a thermal protective garment (EN ISO 14116 Index 2 or above) in areas with a risk of flash fire and where protection from low level liquid spray and particulates is required.

Protection Levels & Additional Properties



Stitched Seams

Combining strength with particle barrier



Model 111

Suit Features

- 2 piece hood
- Elasticated hood, wrists, waist and ankles
- External overlapped seams

Sizes: M-3XL
Colour: Denim Blue



*MICROGARD® FR should never be worn in isolation for flame retardant protection. Always wear over the top of garments which achieve EN ISO 14116 Index 2 or above. ** Ret is a measurement of a materials resistance to moisture vapour transfer. The lower the value the less resistance there is and therefore the more "breathable" the fabric.

MICROGARD® FR Technical Data

MICROGARD® FR is extensively tested in accordance with statutory requirements, including physical performance attributes.

Test Method	Result	EN Class
EN 530 Abrasion (visual assessment)	500 cycles	3 of 6
EN ISO 7854 Flex Cracking (visual assessment)	100,000 cycles	6 of 6
EN ISO 9073-4 Tear Resistance (MD)	42.1N	2 of 6
EN ISO 9073-4 Tear Resistance (CD)	26.3N	
EN ISO 13934-1 Tensile Strength (MD)	164.7N	2 of 6
EN ISO 13934-1 Tensile Strength (CD)	90.7N	
EN 863 Puncture Resistance	17N	2 of 6
EN ISO 13938-1 Burst Resistance	120kPa	2 of 6
EN 13274-4 Resistance to ignition	Pass	-
EN 25978 Resistance to Blocking	Slight Blocking	-
EN 1149-5 Electrostatic Properties (surface resistivity)	<5.0 x 10 ¹⁰	-
ISO 13935-2 Seam Strength	148.9N	4 of 6
EN ISO 14116 Limited Flame Spread	Index 1/0/0	-

MICROGARD® FR

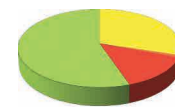
Simulated flash fire test data

prEN ISO 13506

Draft standard for protective clothing against heat and flame – test method for complete garments – prediction of burn injury using an instrumented mannequin (ISO/DIS 13506: 2004)

Body Burn Prediction

Flame Exposure Time: 4 seconds
(data acquisition time 60 seconds)*
Mean heat flux: 84kW/m² (+/-5%)



Clothing System A

- 2nd & 3rd degree burns = 14%
- 1st degree burns = 0.9%
- Pain = 29.8%

Outer layer – MICROGARD® FR coverall, size XL

Mid layer – Inherently FR 265g/m² thermal protective coverall, size Medium/Regular (chest 102-107cm)

Base layer – Inherently FR thermal protective long sleeve vest, size Large



Clothing System B

- Pain = 12.3%

Outer layer – MICROGARD® FR coverall, size XL

Mid layer – Roots FRA-02 350g/m² Pyrovatex FR treated cotton coverall, size UK44 regular

Base layer – 100% cotton long sleeve T-shirt size L, Denim jeans size 36" waist Regular

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Note: The burn injury results are expressed by calculating the percentage burn injury based on the total area of mannequin covered by the garments under test being 100%. For these tests the head, hands and feet were therefore not included in the calculations.

Technical Support

To test MICROGARD® FR with your flame retardant workwear, contact our technical team on

+44 (0) 1482 625444

or email

technical@microgard.com