



Range Overview  
**MICROGARD® FR**



# MICROGARD® FR



**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 pressurised liquid spray without compromising worker protection in the event of a flash fire\*.

**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\*

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.

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

## 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

## Applications

- Oil and petrochemicals
- Petroleum distribution and processing
- Utilities

## Protection Levels & Additional Properties



TYPE 5



TYPE 6



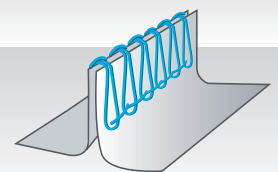
EN 1073-2

EN ISO 14116  
INDEX 1/0/0

EN 1149-5

## Stitched Seams

Combining strength with particle barrier



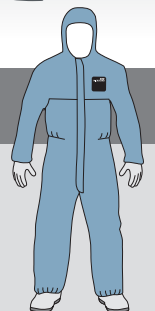
## Model 111

### Suit Features

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

**Sizes:** M-5XL

**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.

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**MICROGARD®**  
High Performance Protection in Comfort

# MICROGARD® FR Technical Data

## MICROCHEM® CFR 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	3 of 6
EN ISO 7854 Flex Cracking (visual assessment)	>100,000	6 of 6
EN ISO 9073-4 Tear Resistance (MD)	>20N	2 of 6
EN ISO 9073-4 Tear Resistance (CD)	>20N	
EN ISO 13934-1 Tensile Strength (MD)	>100N	2 of 6
EN ISO 13934-1 Tensile Strength (CD)	>60N	
EN 863 Puncture Resistance	>10N	2 of 6
EN ISO 13938-1 Burst Resistance	>80kPa	2 of 6
EN 13274-4 Resistance to ignition	Pass	-
EN 1149-5 Electrostatic Properties (surface resistance)	<2.5 x 10 <sup>9</sup>	-
ISO 13935-2 Seam Strength	>125N	4 of 6
EN ISO 14116 Limited Flame Spread	Index 1/0/0	-

Fabric Repellence & Penetration - Resistance to Liquid Chemicals	Result (%)	EN Class
Repellence of Liquids - 30% Sulphuric Acid	>95	3 of 3
Repellence of Liquids - 10% Sodium Hydroxide	>95	3 of 3
Resistance to penetration by liquids- 30% Sulphuric Acid	0.0	3 of 3
Resistance to penetration by liquids 10% Sodium Hydroxide	0.0	3 of 3

### 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/m<sup>2</sup> (+/-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 265 g/m<sup>2</sup> 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-02 350 g/m<sup>2</sup> Pyrovatex FR treated cotton coverall, size UK44 regular

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

### 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](mailto:technical@microgard.com)

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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.

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