

Flame Resistant and Retardant Clothing

In partnership with key suppliers who are specialist providers of flame resistant and retardant clothing, we offer a complete solution for customers who require protection from heat, flame and dangerous substances: from identifying workplace hazards and the subsequent protective clothing requirements, to offering a solution taking into account wearer comfort and value throughout the life of the garment.

Types of fabric used in Flame Resistant and Retardant Clothing

It is important that workers wear adequate protective clothing because it provides escape time, it reduces burn injury and it increases wearer's chances of survival.

Flame Resistant Fabrics

Inherently flame resistant fabrics are fabrics manufactured with fibres whose innate properties make them naturally flame resistant without a chemical treatment. The fabric's effectiveness will not be reduced by repeated washing or wear and as such these fabrics ensure optimum protection throughout the life of the garment.

Flame Retardant Fabrics

Flame retardant treated fabrics are produced by applying a finish to a fibre or fabric to reduce its flammability, or by incorporating a flame retardant chemical into the fibre prior to spinning. The flame retardant treatment chemicals are 'activated' by intense heat, producing char and gases that inhibit combustion for a certain time. Because the flame retardant treatment is a chemical treatment which is washed out with time, the fabrics will only conform to heat and flame standards for a limited number of washes.

Standards in thermal personal protective clothing

Changes to heat and flame standards for protective clothing:

- EN 470-1 is replaced by EN 11611
- EN 531 is replaced by EN 11612
- EN 533 is replaced by EN 14116

While existing products certified to the old standards are still valid, moving forward all new products which are manufactured must be tested and certified to the new standards. Products certified to the new standards have passed increased testing so that not only does the fabric have to comply with new specifications but garment aspects such as seams do too.

Anti-Static Standards

EN1149 – Protective clothing – Electrostatic properties. Anti-static clothing suppresses static charge, thereby preventing sparks, which might cause a fire or explosion. EN1149-5 is a part of a larger system.

EN 1149 consists of the following parts:

- EN1149-1: test methods for the measurement of surface resistance
- EN1149-2: test methods for the measurement of the electrical resistance through a material (vertical resistance)
- EN1149-3: test methods for the measurement of charge decay
- EN1149-4: garment test method (under development)
- EN1149-5: performance requirements.



EN 470-1 Tensile strength Tear strength Dimensional change Limited flame spread Small drops of molten metal	➔	EN 11611 Tensile strength Tear strength Burst strength Seam strength Dimensional change Requirements of leather Limited flame spread Molten droplets Heat transfer (radiation) Electrical resistance
EN 531 Dimensional change Limited flame spread (A) Convective heat (B) Radiant heat (C) Molten aluminium splash (D) Molten iron splash (E)	➔	EN 11612 Heat resistance Limited flame spread (A) Dimensional change Tensile strength Tear strength Burst strength Seam strength Convective heat (B) Radiant heat (C) Molten aluminium splash (D) Molten iron splash (E) Contact heat (F)
EN 533 Flame spread	➔	EN 14116 Flame spread Tensile strength Tear strength Seam strength