

Protective clothing – clothing to protect against heat and flame

Reference Number: EN 11612

Status: European Standard

Scope: This International Standard specifies performance requirements for garments made from flexible materials, which are designed to protect the wearer's body, except the hands, from heat and /or flame. For protection of the wearer's head and feet, the only items of protective clothing falling within the scope of this International Standard are gaiters, hoods and overboots.

CONTENT

Remarks:

However, concerning hoods, requirements for visors and respiratory equipment are not given. The performance requirements set out in this International Standard are applicable to garments which could be worn for a wide range of end uses, where there is a need for clothing with limited flame spread properties and where the user can be exposed to radiant or convective or contact heat or to molten metal splashes.

Scope:

- A need for clothing with limited flame spread properties
- Can be exposed to radiant or convective heat or to molten metal splashes
- Not applicable for fire fighting, welding and allied processes

The standard specifies 3 areas

1. Performance requirements material
2. Design requirements
3. Marking & guidance

Ad 1) Performance requirements for woven fabrics (after pretreatment*)

TEST	METHOD	REQUIREMENT
Physical requirements		
Dimensional change due to cleaning	ISO 5077	Max 3%
Tensile strength	ISO 13934-1	300N
Tear strength	ISO 13937-2	15 N
Innocuousness · pH value · Cr (VI) content Innocuousness is tested in new state material	ISO 3071 ISO 17075	>3.5 - < 9.5 Less than detection limit
Heat and flame requirements		
Limited flame spread (code A) • A1: surface ignition • A2: edge ignition	ISO 15025	<ul style="list-style-type: none"> • No flaming to the top or edge • No hole formation • No flaming or molten debris • Mean after flame time max 2 s • Mean afterglow time max 2 s
Convective heat (code B)	ISO 9151	3 performance levels
Radiant heat (code C)	ISO 6942 B	4 performance levels
Molten aluminium splash (code D)	ISO 9185	3 performance levels
Optional tests		
Resistance to water penetration (code W)	EN 343	
Protection against effects of electric arc	EN IEC 61482-1-2	
Prediction of injury by burns	ISO 13506	(full garment test)

* Pretreatment:

All tests, with the exception of innocuousness, in EN ISO 11612 are carried out after a cleaning pretreatment. The amount of cleaning cycles and cleaning method is set by the manufacturer based on standardized cleaning standards. The limited flame spread (letter code A) is also carried out after the maximum amount of cleaning cycles, set by the manufacturer based on standardized cleaning standards.

Cleaning methods:

ISO 6330 Domestic laundry
ISO 15797 Industrial laundry
ISO 3175-1 Dry cleaning