



EUROPEAN STANDARDS OF TECHNICAL GARMENTS AND FIREMEN'S EQUIPMENT

Technical clothing of protection is adapted to many occupational hazards: diving-suits, jackets, trousers, combinations, overalls, waistcoats and parkas against the chemicals products, fire, heat, cold and hornets, for high-visibility and forest work.

This clothing is governed by specific European standards.

You will find, below, a summarized presentation of each standard.

- [EN 533](#) : Index of resistance of outside shell (from 1 to 3)
- [EN 469](#) : Protective clothing for firemen
- [EN 443](#) : Helmets for firemen prEN433
- [EN 369](#) : Chemical protective clothing : Permeation by liquids
- [EN 465](#) : Garments for chemical protection
- [EN 466](#) : Chemical protective clothing: Connections tight with the liquids (Type 3).
- [EN 467](#) : Clothing protective against the chemicals liquidate
- [Pr EN943-1](#) : Clothing protective against the liquid chemicals products and gas.
- [Pr EN13034](#) : Requirements for the combinations of protection against the liquid chemicals.
- [EN 368](#) : Penetration resistance of clothing by aerosols and fine particles. Equipment of the type Equipment of the type 5
- [EN 468](#) : Chemical protective clothing : penetration by spray
- [EN 531](#) : Protective clothing for the workers of industry exposed to heat.
- [EN 470-1](#) : Protective clothing for use in welding
- [EN 381-5](#) : Protective clothing for users of hand-held chainsaws
- [Pr EN381-11](#) : Protective clothing for users of chain saws held with the hand (jackets).
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Norme EN533 : Index of resistance of outside shell (from 1 to 3)

The present European standard specifies the requirements of performances for materials and material assemblies to the propagation of limited flame used in protective clothing. The performance is expressed by an index of propagation of flame limited before and after cleaning:

- **Index 1:** Materials not producing any propagation of the flame but forming a hole in contact with a flame

forming any hole in contact with a flame

- **Index 3:** Materials not producing any propagation of the flame and not forming any hole in contact with a flame. Presenting only one limited persistent flame

Norme EN469 : Protective clothing for firemen

This standard specifies the testing methods and the minimal requirements necessary of clothing having to be carried within the framework of interventions for the fire control in urban environment and of associated activities, in zones presenting a risk of heat and or flame.

It treats general design of clothing, levels of minimal performance of materials used and testing methods to determine those.

The levels of necessary performance can be reached by the use of only one or several articles of clothing.

Norme EN443 : Helmets for firemen prEN433

This standard fixes the characteristics required of the helmets of protection used by the fire control and first-aid organizations as well as the testing methods making it possible to check these characteristics.

Chemical protective clothing : Permeation by liquids

Norme EN369 :

This european standard describes a laboratory test method that enables an assessment to be made of the resistance to permeation by liquids afforded by clothing materials.

Norme EN465 : Garments for chemical protection

Relative to performance requirements for chemical protection garments with fogs tight joints between the different parts of the garment.

Norme 466 : Chemical protective clothing: Connections tight with the liquids (Type 3).

The present European standard specifies the minimal requirements requested from chemical protective clothing tight with the liquids, equipped with connections tight with the liquids between the various parts of clothing, like with the gloves and the boots intended to protect their carrier against the liquid chemicals.

Norme 467 : Clothing protective against the chemicals liquidate

The present standard specifies the minimal requirements requested from the articles of clothing offering a protection against the chemicals liquidate with certain parts of the body, for example the aprons, the handles and the hoods. It specifies the requirements of performance for materials constitutive of protective clothing but not for complete chemical protective clothing, each article of individual clothing which can be carried with other articles.

This standard specifies the minimal requirements for the broken down and non-ventilated combinations of chemical protection "tight with gas" (standard 1) and "nontight with gases" (standard 2) including components such as the eyepieces and apparatuses of respiratory protection (APR), gloves and boots which can be specified in other standards.

Norme Pr EN13034 : Requirements for the combinations of protection against the liquid chemicals.

This European standard specifies the requirements minimal for the combinations of chemical protection of limited use and reusable (type 6). It also specifies the minimal requirements for the connections between the various parts of clothing by the use of a fog test reduced for the complete combination which constitutes a variation of standard **EN468:1994**. Both principal test of the **pr13034** are the tests to standards **EN368** (fabric) and standard **EN468** (clothing). Standard **EN368** sufficient step to certify this clothing. This clothing offers a limited protection against the exposure to the liquid aerosols, the fog and the light splashes where the type of potential exposure, fog, mist... is defined.

Norme EN368 : Penetration resistance of clothing by aerosols and fine particles. Equipment of the type Equipment of the type 5.

Measure penetration (passage of a chemical product through the holes or the essential openings in a material) and the repulsion (aptitude of a material to evacuate liquid applied to surface).

Norme EN468 : Chemical protective clothing : penetration by spray

This european standard specifies a method making it possible to determine the resistance of clothing protective chemical the penetration by fogs of chemicals liquid.

Norme EN531 : Protective clothing for the workers of industry exposed to heat.

This European standard specifies the requirements of performances and the testing methods for materials used in clothing and gives recommendations concerning the shape of clothing so necessary. This standard is applicable to protective clothing for the workers of industry exposed to heat. Clothing is composed of articles of clothing of tops made up of flexible materials intended to protect from the specific parts of the body. The hoods and the gaiters are included but all the other type of protection of the head, the hands and the feet are excluded. Protective clothing respecting the requirements of this European standard aims at protecting the workers from industry against the briefs contacts with a flame and against at least a type of heat. Heat can be presented in the form of convective heat, of radiant heat, significant projections of molten metals or a combination of these risks of heat.

Norme EN470 -1 : Protective clothing for use in welding

Standard **EN470-1** specifies the testing methods and the general requirements of performances of protective clothing intended for the operators of welding and related techniques presenting of the comparable risks. This type of protective clothing has as an aim to protect that which carries it against small metal projections in fusion, the contact of short duration with a flame, like against the ultraviolet radiations. It is intended to be carried, at ambient temperature, in a continuous way up to 8 h. Of the additional requirements which apply to certain specific types of operations of welding will be treated in other parts of this European standard.

Norme EN381 - 5 : Protective clothing for users of hand-held chainsaws

This present standard belongs to a series concerning the equipment dde individual protection intended to protect from the risks which had with the use of chain saws held with the hand. No protection equipment can ensure 100% of protection against the cuts due to a chain saw held with the hand. Nevertheless, the experiment showed that it is possible to manufacture a protection equipment which offers a certain degree of protection.

Norme Pr EN381 - 11 : Protective clothing for users of chain saws held with the hand (jackets).

This present standard belongs to a series concerning the equipment individual protection intended to protect from the risks which had with the use of chainsaws held with the hand. No protection equipment can ensure 100% of protection against the cuts due to a chain saw held with the hand. Nevertheless, the experiment showed that it is possible to manufacture protection equipment which offers a certain degree of protection.