



SLOVENSKI STANDARD
oSIST prEN ISO 11612:2023
01-november-2023

Varovalna obleka - Obleka za varovanje pred toploto in plamenom - Minimalne zahtevane lastnosti (ISO/DIS 11612:2023)

Protective clothing - Clothing to protect against heat and flame - Minimum performance requirements (ISO/DIS 11612:2023)

Schutzkleidung - Kleidung zum Schutz gegen Hitze und Flammen - Mindestleistungsanforderungen (ISO/DIS 11612:2023)

Vêtements de protection - Vêtements de protection contre la chaleur et les flammes - Exigences de performance minimales (ISO/DIS 11612:2023)

Ta slovenski standard je istoveten z: prEN ISO 11612

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Protective clothing - Clothing to protect against heat and flame - Minimum performance requirements

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety - Personal protective equipment*, Subcommittee SC 13, *Protective clothing*.

This fourth edition cancels and replaces the third edition (ISO 11612:2015), which has been technically revised.

The main changes are as follows:

- Issue dates added to normative references;
- Removed reference to EN 15614, *Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland clothing*;
- Additional design requirements for molten splash protective garments; zipper guidance added;
- Correction made to burst strength in [clause 6.5.3](#), related to 7.3cm² test area. Corrected from 200kPa to 260kPa based on Pascal's law; a diameter of 50cm² is 7.98cm, and a diameter of 7.3cm² is 3.05cm. The ratio of the diameter is 2.61;
- Guidance on minimum number of test samples added for test methods without specified requirements;
- Heat transmission performance, Radiant Heat; Performance level C1 references Round Robin 6942:2022; [Annex A](#);
- Optional test – Whole garment test against fire exposure on thermal manikin removed;
- EN IEC 61482-2: 2020, *Protective clothing against the thermal hazards of an electric arc* referenced in introduction;
- Graphical symbol for single use added;
- Sustainability statement added to [Annex C](#);

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- [Annex E](#) provides extended guidance on uncertainty of measurement;
- Informative [Annex F](#) relating to Smart Garments added;

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The purpose of this document is to provide minimum performance requirements for clothing to protect against heat and flame, which could be worn for a wide range of end uses. All the other standards listed in this Introduction deal also with clothing to protect against heat and flame, but rather for quite specific products or end uses.

Within many of the hazards listed in this document there are three performance levels:

- Level 1 to indicate exposure to low risk;
- Level 2 to indicate exposure to medium risk;
- Level 3 to indicate exposure to high risk.

For protection against extreme exposures to radiant heat, there is a fourth performance level to take into account, high performance materials such as aluminized and similar materials. The level of personal protection to be provided is based on the outcome of the risk assessment and some comments on risk assessment are given in [Annex D](#).

For complete protection against exposure to heat and/or flame, it is probable that it will be necessary to protect the head, face, hands, and/or feet with suitable Personal Protective Equipment (PPE) and in some cases, appropriate respiratory protection might also be considered necessary.

Attention is drawn to ISO/TR 2801:2007^[1], which sets out guidelines for selection, use, care, and maintenance of protective clothing against heat and flame and with respect to industrial garments CEN 14560:2018 may also be a relevant source of guidance.

Nothing in this document is intended to restrict any jurisdiction, purchaser, or manufacturer from exceeding these minimum requirements. It is one of several standards for clothing that have been developed to protect persons against heat and/or flames. Other standards include:

- ISO FDIS 11611:2022, *Protective clothing for use in welding and allied processes*;
- ISO 11613:2017, *Protective clothing for firefighters — Laboratory test methods and performance requirements*;
- ISO 14460:1999, *Protective clothing for automobile racing drivers — Protection against heat and flame — Performance requirements and test methods*;
- ISO 15384:2018+Amd 1:2021, *Protective clothing for firefighters — Laboratory test methods and performance requirements for wildland firefighting clothing*;
- ISO 15538:2001, *Protective clothing for firefighters — Laboratory test methods and performance requirements for protective clothing with a reflective outer surface*;
- EN IEC 61482-2: 2020, *Protective clothing against the thermal hazards of an electric arc*;
- EN 469:2020, *Protective clothing for firefighters — Performance requirements for protective clothing for firefighting*;
- EN 1486:2007, *Protective clothing for fire-fighters — Test methods and requirements for reflective clothing for specialized fire fighting*;
- EN 13911:2017, *Protective clothing for firefighters — Requirements and test methods for fire hoods for firefighters*;
- ISO 11999-3:2015, *PPE for firefighters — Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures*.

Protective clothing - Clothing to protect against heat and flame - Minimum performance requirements

1 Scope

This document specifies performance requirements for protective clothing 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 document are gaiters, hoods, and over boots. However, concerning hoods, requirements for visors and respiratory equipment are not given.

The performance requirements set out in this document are applicable to protective clothing 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.

This document is not applicable to protective clothing that is specified by other International Standards (see Introduction).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. Only the edition cited applies.

ISO 3376:2020, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage elongation*

ISO 3377-1:2011, *Leather — Physical and mechanical tests — Determination of tear load — Part 1: Single edge tear*

ISO 4048:2018, *Leather — Chemical tests — Determination of matter soluble in dichloromethane and free fatty acid content*

ISO 5077:2007, *Textiles — Determination of dimensional change in washing and drying*

ISO 5725-2:2019, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 6530:2005, *Protective clothing — Protection against liquid chemicals — Test method for resistance of materials to penetration by liquids*

ISO 6942:2022, *Protective clothing — Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat*

ISO 9151:2016, *Protective clothing against heat and flame — Determination of heat transmission on exposure to flame*

ISO 9185:2007, *Protective clothing — Assessment of resistance of materials to molten metal splash*

ISO/FDIS 11611:2022, *Protective clothing for use in welding and allied processes*

ISO 12127-1:2015, *Clothing for protection against heat and flame — Determination of contact heat transmission through protective clothing or constituent materials — Part 1: Contact heat produced by heating cylinder*