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Protective clothing - Assessment of resistance of materials to molten metal splash (ISO 9185:2025)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 13.340.10

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EUROPEAN STANDARD

EN ISO 9185

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2025

ICS 13.340.10

Supersedes EN ISO 9185:2007

English Version

Protective clothing - Assessment of resistance of materials to molten metal splash (ISO 9185:2025)

Habillement de protection - Évaluation de la résistance
des matériaux aux projections de métal fondu (ISO
9185:2025)

Schutzkleidung - Beurteilung des
Materialwiderstandes gegen flüssige Metallspritzer
(ISO 9185:2025)

This European Standard was approved by CEN on 27 September 2025.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 9185:2025) has been prepared by Technical Committee ISO/TC 94 "Personal safety - Personal protective equipment " in collaboration with Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 9185:2007.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 9185:2025 has been approved by CEN as EN ISO 9185:2025 without any modification.

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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 document 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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 162, *Protective clothing including hand and arm protection and lifejackets*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 9185:2007), which has been technically revised.

The main changes are as follows:

- reference to the new PVC sensor film (footnote 1 in [5.2](#));
- addition of possible use of a metal support ([Figure 3](#), [5.10](#), [Clause 12](#) and [Annex A](#));
- addition of a performance level-based testing procedure ([10.2](#));
- addition of [Annex C](#), adjustments and updates in [Annexes A](#) and [B](#).

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.

Introduction

This document introduces changes intended to improve reproducibility when using a new batch of PVC sensor film.

These changes are, principally:

- more precise definitions of damage to the PVC sensor film;
- better damage assessment criteria to determine results;
- introduction of a metal support located beneath the test specimen, for tests using all metals except aluminium and cryolite.

A new batch of PVC sensor film was produced and is shown by thorough inter-laboratory trials to behave comparably to the previous PVC sensor film. The new batch of PVC sensor film is now available by a new world-wide distributor, see footnote 1 in [5.2](#).

Protective clothing — Assessment of resistance of materials to molten metal splash

1 Scope

This document specifies a method for assessing the heat penetration resistance of materials intended for use in clothing to protect against large splashes of molten metal. It provides specific procedures for assessing the effects of splashes of molten aluminium, molten cryolite, molten copper, molten iron and molten mild steel.

The principle of the test method is applicable to a wider range of hot molten materials than those for which specific procedures are set out, provided that appropriate measures are applied to protect the test operator. It is important to note that good resistance of a material to a pure molten metal does not guarantee a good performance against any slag that can be present in a manufacturing process.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 683-1, *Heat-treatable steels, alloy steels and free-cutting steels — Part 1: Non-alloy steels for quenching and tempering*.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 damage

any smoothing or modification to the embossing on the front and/or back of the PVC sensor film, extending in total for at least 5 mm across its width, or pinholing with a diameter of at least 1 mm

Note 1 to entry: Where the visual change in appearance is in discrete spots, damage occurs when the summation of the width of each spot exceeds 5 mm across any horizontal section. For cryolite, experience indicates that damage can be defined as less than 5 mm in width, but greater than 10 mm in length.

3.2 molten metal splash index

figure equal to the minimum mass of molten metal poured which just causes *damage* (3.1) to the PVC sensor film

[SOURCE: ISO 11610:2023, 6.5.40]

4 Principle

Materials are tested by pouring quantities of molten metal onto the test specimen supported at an angle to the horizontal on a specimen holder. Damage is assessed by placing an embossed thermoplastic PVC sensor film directly behind, and in contact with, the test specimen and noting changes to the film after pouring.