



**SLOVENSKI STANDARD
SIST EN ISO 13506-2:2024**

01-november-2024

Varovalna obleka pred učinki toplote in ognja - 2. del: Predvidevanje nastanka poškodb kože zaradi opeklin - Zahteve za izračun in primeri preskusov (ISO 13506-2:2024)

Protective clothing against heat and flame - Part 2: Skin burn injury prediction - Calculation requirements and test cases (ISO 13506-2:2024)

Schutzkleidung gegen Hitze und Flammen - Teil 2: Vorhersage von Verbrennungsverletzungen der Haut - Berechnungsanforderungen und Prüffälle (ISO 13506-2:2024)

Habillement de protection contre la chaleur et les flammes - Partie 2: Prédiction de blessure par brûlure de la peau - Exigences de calculs et cas d'essai (ISO 13506-2:2024)

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Ta slovenski standard je istoveten z: EN ISO 13506-2:2024

ICS:

13.340.10 Varovalna obleka Protective clothing

SIST EN ISO 13506-2:2024 en,fr,de

EUROPEAN STANDARD

EN ISO 13506-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2024

ICS 13.340.10

English Version

Protective clothing against heat and flame - Part 2: Skin burn injury prediction - Calculation requirements and test cases (ISO 13506-2:2024)

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European foreword

This document (EN ISO 13506-2:2024) 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of an identical text or by endorsement, at the latest by December 2024, and conflicting national standards shall be withdrawn at the latest by December 2024.

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The text of ISO 13506-2:2024 has been approved by CEN as EN ISO 13506-2:2024 without any modification.



International Standard

ISO 13506-2

Protective clothing against heat and flame —

Part 2:

Skin burn injury prediction — Calculation requirements and test cases

Habillement de protection contre la chaleur et les flammes —

Partie 2: Prédiction de blessure par brûlure de la peau —

Exigences de calculs et cas d'essai

**Second edition
2024-06**

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Published in Switzerland

ISO 13506-2:2024(en)

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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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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).

SIST EN ISO 13506-2:2024

This second edition of ISO 13506-2, cancels and replaces the first edition (ISO 13506-2:2017), which has been technically revised.

A list of all parts in the ISO 13506 series can be found on the ISO website.

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 heat and flame-resistant protective clothing is to shield the wearer from hazards that can cause skin burn injury. The clothing can be made from one or more materials, which can be made into a garment or protective clothing ensemble for testing on a manikin fire exposure system.

This document is a companion document to ISO 13506-1. The data gathered by tests according to ISO 13506-1 are used as input for this calculation.

In ISO 13506-1, a stationary, upright, adult-sized manikin (male or female) is dressed in a garment or protective clothing ensemble and exposed to a laboratory simulation of a fire with controlled heat flux, duration and flame distribution. The average incident heat flux to the exterior of the garment is 84 kW/m². Thermal energy sensors are fitted to the surface of the manikin. The output from the sensors is used to calculate the heat flux variation with time and location on the manikin and to determine the total energy absorbed over the data-gathering period. The data-gathering period is selected to ensure that the total energy transferred will no longer be rising. The information obtained from the calculation of skin burn injury prediction (see [Annex B](#)) can be used to assist in evaluating the performance of the garment or protective clothing ensemble under the test conditions. It can also be used as a model-based tool to estimate the extent and nature of potential skin damage resulting from the exposure of the test garment.

Fit of the garment or protective clothing ensemble on the manikin is important. Thus, variations in garment or protective clothing ensemble design and how the manikin is dressed by the operator may influence the test results and skin burn injury prediction. Experience suggests that testing a garment one size larger than the standard can reduce the percentage of predicted body burn by up to 5 %.

ISO 13506-1 uses the calculated skin injury information in the calculation of the thermal manikin performance factor.

The method described in this document as an optional part in the fire fighter standards ISO 11999-3 and EN 469 and as an optional part in the industrial heat and flame protective clothing standard ISO 11612.

The National Fire Protection Association standard NFPA 2112^[5] specifies ASTM F1930-18^[6], which is a test method similar to the one described in ISO 13506-1 and which contains skin burn injury prediction calculations similar to the one described in this document.

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