SLOVENSKI STANDARD
oSIST prEN ISO 20471:2026

01-junij-2026

Varovalna obleka - Dobro vidna obleka za opozarjanje v visokotveganih situacijah - Preskusne metode in zahteve (ISO/DIS 20471:2026)

Protective clothing - High visibility warning clothing for high risk situations - Test methods and requirements (ISO/DIS 20471:2026)

Schutzkleidung - Hochsichtbare Warnkleidung - Prüfverfahren und Anforderungen (ISO/DIS 20471:2026)

Habillement de protection - Habillement de signalisation à haute visibilité pour des situations à haut risque - Méthodes d'essai et exigences (ISO/DIS 20471:2026)

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13.340.10	Varovalna obleka	Protective clothing

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DRAFT International Standard

ISO/DIS 20471

Protective clothing — High visibility warning clothing for high risk situations — Test methods and requirements

ICS: 13.340.10

IMPORTANT — Please use this updated version dated 2026-02-04 and discard any previous version of this DIS. Annex ZA has been modified.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 20471 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*.

This corrected version of ISO 20471:2013 incorporates the following correction:

— in the fourth paragraph of subclause 4.1 the requirement concerning the sleeves of a class 3 garment has been corrected.

Introduction

The performance of the conspicuity-enhancing materials to be used for high risk-related visibility clothing is specified photometrically together with minimum areas and placement (design) requirements.

Conspicuity is the property that makes an object readily attract visual attention. This is a particularly important feature in complex environments which have visually competing objects. Conspicuity is determined by an object's luminance contrast, colour contrast, pattern and design, and motion characteristics relative to the ambient background against which it is seen.

Three classes of garment are defined based on three different minimum areas of retroreflective, fluorescent and/or combined-performance materials. Each of these classes will provide a different level of conspicuity, class 3 being the class that provides the highest degree of conspicuity against most backgrounds found in urban and rural situations in daylight and in night time. Users should select the required class of performance based on a risk assessment of the location/situation in which the protection afforded by clothing to this International Standard is required.

This International Standard contains requirements relating to risk assessment and risk analysis of high visibility garments. Possible designs illustrating the placement of retroreflective materials are included within the standard. Ergonomic factors such as fit/sizing, comfort, and range of motion of the wearer should be considered when selecting the most appropriate configuration of retroreflective and fluorescent materials within the garment.

Selection and use of high visibility warning clothing can vary among user countries and may be subject to local regulations. This International Standard contains requirements relating to risk assessment of the condition in which the high visibility warning clothing is to be used. This will involve consideration of the factors which may affect an observer's ability to detect that a person is present. The observer needs both to perceive and to recognize the wearer and then needs to be able to take appropriate avoidance action. The wearing of a conspicuity-enhancing high visibility garment does not guarantee that the wearer will be visible under all conditions.

The minimum requirements given within this International Standard are determined by the specific test methods and their assigned measuring values. The tests are partly performed on new materials and partly on preconditioned materials. By preconditioning (e.g. folding of retroreflective material) a load of the materials is simulated. However, it should be noted that laboratory testing may not represent real life conditions. The conspicuity performance of a garment will depend on usage (e.g. dirt, solar irradiation), care (e.g. cleaning agent, repair), storage (e.g. dust-free, lightproof), etc.

Protective clothing — High visibility warning clothing for high risk situations — Test methods and requirements

1 Scope

This document specifies requirements for high visibility warning clothing which is capable of visually signalling the user's presence. The high visibility warning clothing is intended to provide conspicuity of the wearer in any light condition when viewed by operators of vehicles or other mechanized equipment during daylight conditions and under illumination of headlights in the dark. For further information concerning risk situations, see Annex A.

This document is intended for high-risk situations. This document is not applicable to medium-risk and low-risk situations.

Performance requirements are included for colour and retroreflection as well as for the minimum areas and for the placement of the materials in protective clothing.

2 Normative references

The following referenced documents are indispensable for the application 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 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 105-A02:1993/Cor 1:1997, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour — Technical Corrigendum 1: (Applies to French version only)*

ISO 105-A02:1993/Cor 2:2005, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour — Technical Corrigendum 2*

ISO 105-A03:2019, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 105-B02:2014, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test*

ISO 105-C06:2010, *Textiles — Tests for colour fastness — Part C06: Colour fastness to domestic and commercial laundering*

ISO 105-D01:2010, *Textiles — Tests for colour fastness — Part D01: Colour fastness to drycleaning using perchloroethylene solvent*

ISO 105-E04:2013, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

ISO 105-N01:1993, *Textiles — Tests for colour fastness — Part N01: Colour fastness to bleaching: Hypochlorite*

ISO 105-X11:1994, *Textiles — Tests for colour fastness — Part X11: Colour fastness to hot pressing*

ISO 105-X12:2016, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing*

ISO 1421:2016, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break*

ISO 4674-1:2016, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods*

ISO 4675:2017, *Rubber- or plastics-coated fabrics — Low-temperature bend test*