SLOVENSKI STANDARD
SIST EN ISO 12311:2013

01-oktober-2013

Osebna varovalna oprema - Preskusne metode za sončna očala in podobno opremo (ISO 12311:2013)

Personal protective equipment - Test methods for sunglasses and related eyewear (ISO 12311:2013)

Persönliche Schutzausrüstung - Prüfverfahren für Sonnenbrillen und ähnlichen Augenschutz (ISO 12311:2013)

Équipement de protection individuelle - Méthodes d'essai pour lunettes de soleil et articles de lunetterie associés (ISO 12311:2013)

Ta slovenski standard je istoveten z: **EN ISO 12311:2013**

ICS:

11.040.70	Oftalmološka oprema	Ophthalmic equipment
13.340.20	Varovalna oprema za glavo	Head protective equipment

SIST EN ISO 12311:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 12311

August 2013

ICS 13.340.20

English Version

Personal protective equipment - Test methods for sunglasses and related eyewear (ISO 12311:2013)

Équipement de protection individuelle - Méthodes d'essai pour lunettes de soleil et articles de lunetterie associés (ISO 12311:2013)

Persönliche Schutzausrüstung - Prüfverfahren für Sonnenbrillen und ähnlichen Augenschutz (ISO 12311:2013)

This European Standard was approved by CEN on 30 June 2013.

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

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Foreword

This document (EN ISO 12311:2013) has been prepared by Technical Committee ISO/TC 94 “Personal safety - Protective clothing and equipment” in collaboration with Technical Committee CEN/TC 85 “Eye protective equipment” the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2014, and conflicting national standards shall be withdrawn at the latest by February 2014.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 12311:2013 has been approved by CEN as EN ISO 12311:2013 without any modification.

Annex ZA
(informative)
Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of the EU Directive 89/686/EEC on PPE.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard, together with the relevant requirements given in the product standards, confers within the limits of the scope of those standards, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard

INTERNATIONAL STANDARD

ISO 12311

First edition
2013-08-01

Personal protective equipment — Test methods for sunglasses and related eyewear

Équipement de protection individuelle — Méthodes d'essai pour lunettes de soleil et articles de lunetterie associés

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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. www.iso.org/directives

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committee responsible for this document is ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 6, *Eye and face protection*.

Personal protective equipment — Test methods for sunglasses and related eyewear

1 Scope

This International Standard specifies reference test methods for determining the properties of sunglasses given in ISO 12312 (all parts). It is applicable to all sunglasses and related eyewear.

Other test methods may be used if proven to be equivalent.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 1042:1998, *Laboratory glassware — One-mark volumetric flasks*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 4007, *Personal protective equipment — Eye and face protection — Vocabulary*

ISO 8596, *Ophthalmic optics — Visual acuity testing — Standard optotype and its presentation*

ISO 11664-1, *Colorimetry — Part 1: CIE standard colorimetric observers*

ISO 11664-2, *Colorimetry — Part 2: CIE standard illuminants*

ISO 12312-1:2013, *Eye and face protection — Sunglasses and related eyewear — Part 1: Sunglasses for general use*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4007 apply.

4 Prerequisites

The following parameters shall be specified prior to testing [see ISO 12312 (all parts)]:

— the number of specimens;

— specimen preparation;

— any conditioning prior to testing;

— characteristics to be assessed subjectively (inappropriate);

— pass/fail criteria.

5 General test requirements

Unless otherwise specified, the values stated in this International Standard are expressed as nominal values. Except for temperature limits, values which are not stated as maxima or minima shall be subject to a tolerance of ± 5 %. Unless otherwise specified, the ambient temperature for testing shall be between 16 °C and 32 °C. Where other temperature limits are specified they shall be subject to an accuracy of ± 1 °C. Relative humidity shall be maintained at (50 ± 20) %.

Unless otherwise specified, the filters shall be tested at the reference points as defined in ISO 4007.

6 Test methods for assessing the construction and materials

6.1 Prior assessment of construction, marking and information

Prior to applying the test methods, a visual inspection shall be carried out with normal or corrected vision, without magnification. Marking and information supplied by the manufacturer and safety data sheets (if applicable) or declaration relevant to the materials used in its construction shall also be assessed.

6.2 Test method for assessment of filter material and surface quality

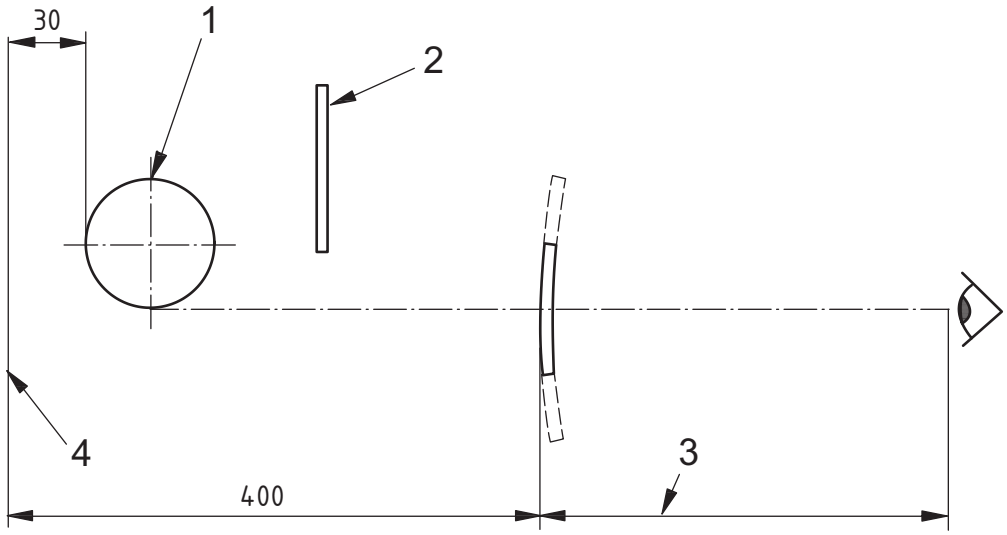
6.2.1 Principle

The quality of the filter material and surface is assessed by visual inspection.

6.2.2 Apparatus

A suitable apparatus is shown in Figure 1.

Dimensions in millimetres



Key

1 lamp
2 adjustable opaque dull black mask
3 near vision distance (≈300)
4 dull black background (200 × 360)

Figure 1 — Arrangement of apparatus for assessment of quality of material and surface

6.2.3 Test procedure

Carry out the assessment of the quality of material and surface by visual inspection with the aid of a “light box” or illuminated grid.

NOTE One method of inspection in current use consists of an illuminated grid as a background to be viewed through the filter which is held at various distances from the eye. Another method is to illuminate the filter by means of a fluorescent lamp mounted within a dull black chamber and with the amount of illumination adjusted by means of an adjustable opaque black mask. A suitable arrangement is shown in Figure 1.

6.2.4 Verification and test report

Except for a marginal area 5 mm wide at the edge of the eye protector, any significant defects likely to impair vision in use shall be recorded in the verification and test report.

7 Test methods for measuring spectrophotometric properties

7.1 Measurement of spectral transmittance $\tau(\lambda)$

7.1.1 Spectral transmittance

7.1.1.1 General

Test methods shall be used which have relative uncertainties in spectral transmittance less than or equal to those given in Table 1.

Table 1 — Relative uncertainty of measured spectral transmittance

Spectral transmittance value		Uncertainty %
Less than %	to %	
100	17,8	±2 absolute
17,8	0,44	±10 relative
0,44	0,023	±15 relative
0,023	0,0012	±20 relative
0,0012	0,000023	±30 relative

The general methods of evaluating the components of uncertainty are set out in ISO/IEC Guide 98-3. Annex A shows how uncertainty of measurement is to be applied in the reporting of results and compliance and Annex B is a guide to the sources of uncertainty in spectrophotometry, their minimization and evaluation.

The location and direction of measurement of transmittance shall be as specified in ISO 12312-1. If the measurements are not made normal to the surface of the filter, then particular attention should be paid to the effects of beam displacement (see Annex B). If the direction of measurement is not specified then it shall be measured normal to the surface of the filter when unmounted.

Calculations shall be carried out at not more than 5 nm intervals ($\Delta\lambda$ = 5 nm) in the ultraviolet-visible region (280 nm to 780 nm) and not more than 10 nm in the infrared region (780 nm to 2 000 nm). The necessary data at these intervals are provided in Annexes D, E, F, H and I.

7.1.1.2 Test procedure

Place the filter in order to follow the location and direction of measurement of transmittance as specified in ISO 12312-1.