SLOVENSKI STANDARD
SIST EN ISO 4007:2019

01-februar-2019

Nadomešča:
SIST EN ISO 4007:2012

Osebna varovalna oprema - Varovanje oči in obraza - Slovar (ISO 4007:2018)

Personal protective equipment - Eye and face protection - Vocabulary (ISO 4007:2018)

Persönliche Schutzausrüstung - Augen- und Gesichtsschutz - Wörterbuch (ISO 4007:2018)

Équipement de protection individuelle - Protection des yeux et du visage - Vocabulaire (ISO 4007:2018)

Ta slovenski standard je istoveten z: EN ISO 4007:2018

ICS:

01.040.13	Okolje. Varovanje zdravja. Varnost (Slovarji)	Environment. Health protection. Safety (Vocabularies)
13.340.20	Varovalna oprema za glavo	Head protective equipment

SIST EN ISO 4007:2019 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4007

December 2018

ICS 01.040.13; 13.340.20

Supersedes EN ISO 4007:2012

English Version

Personal protective equipment - Eye and face protection - Vocabulary (ISO 4007:2018)

Équipement de protection individuelle - Protection des yeux et du visage - Vocabulaire (ISO 4007:2018)

Persönliche Schutzausrüstung - Augen- und Gesichtsschutz - Wörterbuch (ISO 4007:2018)

This European Standard was approved by CEN on 31 August 2018.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN ISO 4007:2018 E

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European foreword

This document (EN ISO 4007:2018) has been prepared by Technical Committee ISO/TC 94 "Personal safety -- Personal protective 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of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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The text of ISO 4007:2018 has been approved by CEN as EN ISO 4007:2018 without any modification.

INTERNATIONAL STANDARD

ISO 4007

Third edition
2018-10

Personal protective equipment — Eye and face protection — Vocabulary

Équipement de protection individuelle — Protection des yeux et du visage — Vocabulaire

Reference number
ISO 4007:2018(E)

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Published in Switzerland

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 6, *Eye and face protection*.

This third edition cancels and replaces the second edition (ISO 4007:2012), which has been technically revised. This third edition builds on the second edition, which was partly based on EN 165.

The main changes compared to the previous edition are as follows.

— The word "*ocular*" has been changed to "*lens*" to describe the transparent material through which the wearer looked.

— Some terms have been moved and renumbered to more suitable positions, e.g. some of the terms that were in the "properties of materials" subclause are now in the "transmittance" subclause.

— 52 new terms have been added, over 100 terms or definitions have been modified and sources have been updated. Greater information about the source of definitions is given where these have been copied from other standards.

— The following terms have been deleted: *giant-pulsed laser*, *haze*, *He-Ne laser*, *optical class*, *protective ocular*, *radiation power*, *untinted ocular*, *very-high-pressure (intensity) mercury vapour lamp*.

— A term relating to the transmittance between 380 nm and 400 nm has been added. Although the definition for UV-A continues to take the wavelength limits of 315 nm to 380 nm, many of the terms and definitions relating to UV-A allow the upper limit to be either 380 nm or 400 nm, depending upon the application.

— Terms relating to "*mesh protectors*" and "*additional lenses*" have been added for use in the appropriate standards.

— hyphens have been removed from many terms relative to the second edition, e.g. in "*eye-protector*" and "*dark-state*", but have been kept in "*as-worn*", "*blue-light*" and "*gradient-tinted*", and in those cases where they would generally be used in English.

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.

Personal protective equipment — Eye and face protection — Vocabulary

1 Scope

This document defines and explains the principal terms used in the field of personal eye and face protection.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

NOTE See also the CIE International lighting vocabulary: Available at: http://eilv.cie.co.at/.

3.1 Risks and hazards

3.1.1
safety, noun
freedom from *risk* (3.1.4) that is not tolerable

Note 1 to entry: The term "safe" is often understood by the general public as the state of being protected from all *hazards* (3.1.3). However, this is a misunderstanding: "safe" is rather the state of being protected from recognized hazards that are likely to cause *harm* (3.1.2). Some level of *risk* is inherent in products or systems. The use of the terms "safety" and "safe" as descriptive adjectives should be avoided when they convey no useful extra information. In addition, they are likely to be misinterpreted as an assurance of freedom from risk. The recommended approach is to replace, wherever possible, the terms "safety" and "safe" with an indication of the objective. For example, use "protective helmet" instead of "safety helmet". See also ISO/IEC Guide 51:2014, Clause 4.

[SOURCE: ISO/IEC Guide 51:2014, 3.14, modified — the term has been identified as a noun, and "which" in the definition has been changed to "that".]

3.1.2
harm
injury or damage to the health of people, or damage to property or the environment

[SOURCE: ISO/IEC Guide 51:2014, 3.1]

3.1.3
hazard
potential source of *harm* (3.1.2)

[SOURCE: ISO/IEC Guide 51:2014, 3.2]

3.1.4
risk
combination of the probability of occurrence of *harm* (3.1.2) and the severity of that harm

Note 1 to entry: The probability of occurrence includes the exposure to a hazardous situation, the occurrence of a hazardous event and the possibility to avoid or limit the harm.

[SOURCE: ISO/IEC Guide 51:2014, 3.9]

3.1.5
intended use
use in accordance with information provided with a product or system, or, in the absence of such information, by generally understood patterns of usage

[SOURCE: ISO/IEC Guide 51:2014, 3.6]

3.1.6
reasonably foreseeable misuse
use of a product or system in a way not intended by the supplier, but which can result from readily predictable human behaviour

Note 1 to entry: Readily predictable human behaviour includes the behaviour of all types of users, e.g. the elderly, children and persons with disabilities. For more information, see ISO 10377[5].

Note 2 to entry: In the context of consumer *safety* (3.1.1), the term "reasonably foreseeable use" is increasingly used as a synonym for both *intended use* (3.1.5) and reasonably foreseeable misuse.

[SOURCE: ISO/IEC Guide 51:2014, 3.7]

3.1.7
blue-light hazard
potential for a photochemically induced retinal injury resulting from *optical radiation* (3.2.1) exposure in the wavelength range 300 nm to 700 nm

3.1.8
infrared lens hazard
potential for a thermal injury to the crystalline lens (and cornea) of the eye resulting from exposure to *optical radiation* (3.2.1) in the wavelength range 780 nm to 3 000 nm

3.1.9
retinal thermal hazard
potential for a thermal retinal injury resulting from exposure to *optical radiation* (3.2.1) in the wavelength range 380 nm to 1 400 nm

3.1.10
ultraviolet hazard
potential for acute and chronic adverse effects to the skin and eye resulting from exposure to *optical radiation* (3.2.1) in the wavelength range 250 nm to 400 nm

3.2 Optical radiation

3.2.1
optical radiation
electromagnetic radiation at wavelengths between the region of transition to X-rays ($\lambda \approx 1$ nm) and the region of transition to radio waves ($\lambda \approx 1$ mm)

Note 1 to entry: Optical radiation is usually subdivided into the following spectral ranges, with a possible overlap at the longer wavelength limit of the UV spectrum:

— *ultraviolet radiation* (3.2.3);

— *visible radiation* (3.2.2);

— *infrared radiation* (3.2.4).

[SOURCE: CIE S 07:2011, 17-848, modified — Note 1 to entry has been added.]

3.2.2
visible radiation
light
any *optical radiation* (3.2.1) capable of causing a visual sensation directly

Note 1 to entry: There are no precise limits for the spectral range of visible radiation since they depend upon the amount of *radiant power* (3.4.7) reaching the retina and the responsivity of the observer. The lower limit is generally taken between 360 nm and 400 nm and the upper limit between 760 nm and 830 nm.

Note 2 to entry: For the purposes of standards on eye protection, the limits of the visible spectrum are usually taken to be 380 nm to 780 nm. These limits coincide with those in ISO 20473 which specifies the spectral ranges for optics and photonics standards and avoids the overlap at either end of the visible spectrum in the CIE definition.

Note 3 to entry: For lasers, the visible wavelength band is defined as 400 nm to 700 nm. This is because eye protection against low-power visible lasers often relies on the eye's aversion response, which includes the *blink reflex* (3.5.1.17). For this to happen, the *laser beam* (3.3.14) should appear very bright, hence the need to cut off the extremes of the visible band where the *spectral luminous efficiency* (3.4.11) of the eye is quite low.

[SOURCE: CIE S 017:2011, 17-1402, modified — Notes to entry 2 and 3 have been added.]

3.2.3
ultraviolet radiation
UV radiation
UVR
optical radiation (3.2.1) for which the wavelengths are shorter than those for *visible radiation* (3.2.2)

Note 1 to entry: For standards for protection against solar radiation including, for example, sunglasses for general use, the upper limit of UV-A is sometimes taken as 380 nm. For standards on requirements for protection against radiation from artificial sources, the upper limit of UV-A is usually taken as 400 nm, which is consistent with the CIE definition. The 400 nm upper limit is also used by, amongst others, ICNIRP, ACGIH, the World Health Organization and in the European Artificial Optical Radiation Directive.

Note 2 to entry: The limit of 380 nm coincides with ISO 20473 which specifies the spectral range of ultraviolet radiation for standards in optics and photonics and subdivides the UV range into

— UV-A: 315 nm to 380 nm;

— UV-B: 280 nm to 315 nm;

— UV-C: 100 nm to 280 nm.

[SOURCE: CIE S 017:2011, 17-1367, modified — the word "optical" has been added to the definition and the CIE Notes 1, 2 and 3 have been deleted and replaced by Notes 1 and 2 to entry.]

3.2.4
infrared radiation
IR radiation
optical radiation (3.2.1) for which the wavelengths are longer than those for *visible radiation* (3.2.2), from 780 nm to 1 mm

Note 1 to entry: For infrared radiation, the range between 780 nm and 1 mm is typically subdivided into:

— IR-A 780 nm to 1 400 nm, or 0,78 µm to 1,4 µm;

— IR-B 1,4 µm to 3,0 µm;

— IR-C 3 µm to 1 mm.

Note 2 to entry: A precise border between "visible" and "infrared" cannot be defined because visual sensation at wavelengths greater than 780 nm is noted for very bright sources at longer wavelengths.