SLOVENSKI STANDARD
SIST EN ISO 19734:2021

01-julij-2021

Varovanje oči in obraza - Navodilo za izbiro, uporabo in vzdrževanje (ISO 19734:2021)

Eye and face protection - Guidance on selection, use and maintenance (ISO 19734:2021)

Augen- und Gesichtsschutz - Leitfaden zur Auswahl, Anwendung und Instandhaltung (ISO 19734:2021)

Protection des yeux et du visage - Lignes directrices pour le choix, l'utilisation et l'entretien (ISO 19734:2021)

Ta slovenski standard je istoveten z: **EN ISO 19734:2021**

ICS:

13.340.20 Varovalna oprema za glavo Head protective equipment

SIST EN ISO 19734:2021 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 19734

March 2021

ICS 13.340.20

English Version

Eye and face protection - Guidance on selection, use and maintenance (ISO 19734:2021)

Protection des yeux et du visage - Lignes directrices pour le choix, l'utilisation et l'entretien (ISO 19734:2021)

Augen- und Gesichtsschutz - Leitfaden zur Auswahl, Anwendung und Instandhaltung (ISO 19734:2021)

This European Standard was approved by CEN on 2 March 2021.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.

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

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

Contents

Page

European foreword

This document (EN ISO 19734:2021) 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 September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

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.

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, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 19734:2021 has been approved by CEN as EN ISO 19734:2021 without any modification.

INTERNATIONAL STANDARD

ISO 19734

First edition
2021-02

Eye and face protection — Guidance on selection, use and maintenance

Protection des yeux et du visage — Lignes directrices pour le choix, l'utilisation et l'entretien

Reference number
ISO 19734:2021(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 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 6 *Eye and face protection*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 85, *Eye-protective equipment,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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 is intended to provide guidance on how to select, use and maintain eye and face protectors. A workplace eye and face safety programme should be introduced and a hierarchy of control followed where workers are exposed to a recognised risk of injury to the eyes and/or face. Examples of areas and processes where eye and/or face hazards may exist are shown in Tables 2, 4 and 5.

The aim of an eye and face safety programme is to protect the eyes and face of the worker through the process of elimination or control of hazards and, where necessary, the wearing of appropriate protection.

While responsibility for the successful implementation of an eye and face safety programme rests with senior management, every effort is required to secure the participation and involvement of employees or their representatives in all phases of the programme. Experience has shown that programmes lacking this involvement have less chance of success.

A critical examination of working conditions, particularly lighting, layout and planning of buildings and processes, forms a necessary part of an eye and face safety programme.

Selection of a suitable programme may be assigned to safety personnel within the organisation or advice may be sought from outside sources. Elements that have been found in successful eye and face safety programmes include the following:

a) An assessment of hazards.

b) Determination of workplace hazard areas.

c) Elimination or confinement of hazards (where possible).

d) Vision screening.

e) Referral for optometric, ophthalmological examination or both, where necessary.

f) The universal wearing of suitable eye and face protectors for those persons at risk.

g) Educational campaigns on eye safety.

Eye and face protectors are items of personal protective equipment (PPE) intended to prevent the harmful effects that physical (e.g. flying particles, dust, splashing and molten materials), optical (e.g. solar and artificial radiation and high intensity radiation generated during operations such as welding and furnace work), chemical (e.g. pressurised materials, harmful gases, vapours and aerosols) and biological hazards may have to the eye and face.

For eye and face protectors to be effective they should be used at all times when the user is in a potentially hazardous environment. When selecting eye and face protectors, attention should be given to factors influencing comfort and user preference.

Those involved in selling eye and face protectors to the general public for use in non-workplace settings should adhere to the principles and guidance in this standard to ensure that users of personal protective equipment are fully informed about making the safest choice for a particular task and environment as well as how to use the protective equipment in the safest manner. This should also apply to those businesses that hire out power equipment. Safety guidance based on this document should be provided to prospective customers to ensure that they select and use the correct protective equipment to reduce the risk of eye and face injury.

Eye and face protection — Guidance on selection, use and maintenance

1 Scope

This document gives guidance to specifiers and users on the control of eye and face hazards including physical, mechanical, chemical, optical radiation and biological and on the selection, use and maintenance of eye and face protectors.

This document applies to

— occupational use,

— tasks that are performed similarly to those in an occupation but not in the workplace, e.g. "do-it-yourself", and

— schools, educational and research establishments.

This document does not apply to eye and face protection for

— ionizing radiation,

— low frequency radio waves,

— microwaves,

— sports or vehicular usage, and

— sunglasses for general (not occupational) use – see ISO 12312-1.

NOTE The ISO 18527 (all parts) sets requirements for eye protectors for some sports.

Brief advice on protection when using lasers is included but for detailed advice, see IEC/TR 60825-14.

This document is neither a whole nor partial substitute for risk assessment, which is an essential part of any eye and face protection programme.

Although this document has been written to help specifiers and users, any recommendations in this document are to be interpreted as guidance only and not intended to replace any national regulatory requirements. Risk assessment is the sole responsibility of the employer and not the PPE manufacturer or its authorised representative.

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4007[1)] and the following apply[2)].

1) The terms and definitions for risk and hazard have been included here for the reader's convenience.

2) The abbreviation PPE means personal protective equipment.

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 ISO/IEC Guide 51:2014, Clause 4, states: The term “safe” is often understood by the general public as the state of being protected from all hazards. However, this is a misunderstanding: “safe” is rather the state of being protected from recognized hazards that are likely to cause harm. Some level of risk is inherent in products or systems. The use of the terms “safety” and “safe” as descriptive adjectives is 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, the phrase “protective spectacles” should be used in preference to “safety spectacles”.

3.1
hazard
potential source of harm

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

3.2
risk
combination of the probability of occurrence of harm and the severity of that harm

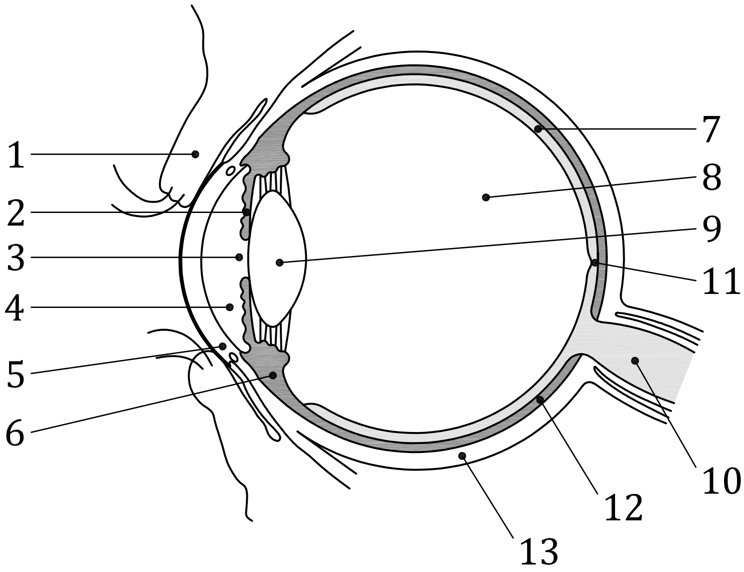
Note 1 to entry: Note 1 to entry: The probability of occurrence includes the exposure to a hazardous situation, the occurrence of a hazardous event and the possibility to avoid or limit the harm.

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

4 General

4.1 Structure of the human eye

See Figure 1.



Key

1	eyelid
2	iris
3	pupil
4	anterior Chamber (filled with aqueous humour)
5	cornea
6	ciliary muscle
7	retina
8	vitreous chamber (filled with vitreous humour)
9	crystalline lens
10	optic nerve
11	macular region of retina
12	pigment epithelium and choroid
13	sclera

Figure 1 — Outline of the human eye (cross section)

a) Light emitted, transmitted or reflected by an object in the field of vision travels toward the eyes.

b) Light passes through the CORNEA (transparent “front window” of the eye), which provides two-thirds of the focusing power of the eye.

c) The PUPIL (the opening at the centre of the pigmented IRIS) changes size to vary the amount of light that reaches the retina.

d) The CRYSTALLINE LENS provides the remaining focusing power of the eye.

e) The RETINA (rear inner lining of the eye that contains light-sensitive and image processing cells and nerve fibres) converts light into neural signals. The MACULAR region is located near the centre of the retina and is dense with photoreceptors; its function is to process central vision in fine detail.

f) The OPTIC NERVE is the collection of nerve fibres that carry these signals to the brain.

4.2 Hazards and risks to the eye and face

4.2.1 Surrounding structures of the eye

The structures surrounding the eye, including the eyelids, skin, muscles and the orbital bones are susceptible to permanent damage. Objects of sufficient energy can cause bone fracture, contusions, lacerations and penetration of these tissues. Damage to the muscles and bones around the eye can result in a temporary or permanent disruption to binocular vision.

