



**SLOVENSKI STANDARD**  
**SIST EN 172:1996/A2:2001**

**01-december-2001**

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Personal eye protection - Sunglare filters for industrial use

Personal eye protection - Sunglare filters for industrial use

Persönlicher Augenschutz - Sonnenschutzfilter für den betrieblichen Gebrauch

Protection individuelle de l'oeil - Filtres de protection solaire pour usage industriel

**Ta slovenski standard je istoveten z: EN 172:1994/A2:2001**

[SIST EN 172:1996/A2:2001](https://standards.iteh.ai/catalog/standards/sist/51764227-8598-40a1-b880-7dd5d02d4861/sist-en-172-1996-a2-2001)

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**ICS:**

13.340.20 Varovalna oprema za glavo Head protective equipment

**SIST EN 172:1996/A2:2001**

**en**

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ICS 13.340.20

English version

## Personal eye protection - Sunglare filters for industrial use

Protection individuelle de l'oeil - Filtres de protection solaire  
pour usage industriel

Persönlicher Augenschutz - Sonnenschutzfilter für den  
betrieblichen Gebrauch

This amendment A2 modifies the European Standard EN 172:1994; it was approved by CEN on 29 June 2001.

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

This amendment 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Foreword

This Amendment EN 172:1994/A2:2001 to the EN 172:1994 has been prepared by 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 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

This Amendment to the European Standard EN 172:1994 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(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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## Revised text

## 5.3.1 Photochromic sunglare filters

## 5.3.1.1 Conditioning

Unless the manufacturer specifies a different procedure to reach the faded state in the information supplied with the product, photochromic filters shall be conditioned by the following procedure.

Store samples in the dark at  $(65 \pm 5) ^\circ\text{C}$  for  $(2 \pm 0,2)$  h. Then store in the dark at  $(23 \pm 5) ^\circ\text{C}$  for at least 12 h.

## 5.3.1.2 Measurement

NOTE Most photochromic materials respond to normal room lighting and all measurements should therefore be made in absence of extraneous light.

**WARNING Care should be taken to ensure that the radiation used for the measurements does not cause darkening or bleaching of the sample.**

In order to test the variability of the transmittance, a source simulating daylight shall be used. It should approximate as closely as practicable to the spectral distribution of solar radiation for air mass  $m = 2$  (P. Moon, Journal of the Franklin Institute, Vol. 230 (1940), pp 583-617, see also Table 6 of CIE 85:1989 for the spectral distribution of solar radiation.) at an illuminance of  $(50\ 000 \pm 5\ 000)$  lux, respecting the values given in Table 4.

Testing shall be done with a Xenon high pressure lamp with filters chosen so that the specified illuminance of  $(50\ 000 \pm 5\ 000)$  lux and the irradiance values given in Table 3 are reached. The permissible tolerances of the irradiance values are also given in Table 3.

Table 3 - Irradiance for testing the darkened state of photochromic lenses

Wavelength range nm	Irradiance $\text{W/m}^2$	Tolerance $\text{W/m}^2$
300-340	< 2,5	-
340-380	5,6	$\pm 1,5$
380-420	12	$\pm 3$
420-460	20	$\pm 3$
460-500	26,0	$\pm 2,6$

The luminous transmittance values of photochromic filters defined in 4.3.1 and for the special conditions of use in annex A.4 are determined for the conditions given in Table 4.

Where testing at 15 000 lx is specified, the irradiance values and the permissible tolerances of these values are those given in Table 3, but multiplied by a factor 0,3.

The surface temperature of the filter shall be maintained within  $\pm 1 ^\circ\text{C}$  of the required temperature (see Table 4).

NOTE Darkening may be carried out in a water bath. However, since immersion of the specimen in water reduces the reflectivity of the surface thereby increasing the measured transmittance relative to the transmittance values that would be measured in air, the transmittance values determined using water immersion need correction to yield the equivalent air values. Calibration of the equipment may be checked using a test sample with a refractive index deviating by not more than  $\pm 0,01$  from the refractive index of the sample.

Table 4 - Measurement conditions for the different luminous transmittance values

Luminous transmittance value	Surface temperature of the test specimen °C	Illumination at the surface of the sample lux
$\tau_0$	$23 \pm 1$	0 (faded state)
$\tau_1$	$23 \pm 1$	$50\ 000 \pm 5\ 000$
$\tau_w$	$5 \pm 1$	$50\ 000 \pm 5\ 000$
$\tau_s$	$35 \pm 1$	$50\ 000 \pm 5\ 000$
$\tau_a$	$23 \pm 1$	$15\ 000 \pm 1\ 500$

NOTE These measurement conditions are also recommended for additional data, such as time constant for example.

The requirements of 4.1.1, 4.1.2 and 4.2 shall be met in the faded state and after irradiation for 15 min.

## 6 Filters not suitable for driving and road use

In the case of filters with scale numbers 5-4,1 and 6-4,1 and of filters not meeting 4.2.1 or 4.2.3 the following warning: "Not suitable for driving and road use" in the form of the approved symbol (see Figure 1) or in writing shall be marked on the filters. The minimum height of the symbol shall be 5 mm.

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Figure 1 - Symbol "Not suitable for driving and road use"

### A.1 Daytime

Table A.1 - Scale numbers and recommended use

In the second column of the row containing 5-3,1 and 6-3,1 delete the words ", not recommended for driving".

## A.2 Reduced light

In reduced light, sunglare filters intended for bright daylight reduce visual perception. The lower the luminous transmittance value of the sunglare filter, the more the vision is impaired. Sunglare filters with a luminous transmittance of less than 75 % are not suitable for use in twilight or at night. Photochromic sunglare filters are considered suitable for use in twilight or at night if they reach a luminous transmittance of more than 75 % after testing as follows:

- a) filters are conditioned as described in 5.3.1;
- b) filters are then exposed to  $(15\,000 \pm 1\,500)$  lux at  $(23 \pm 1)$  °C for 15 min;
- c) filters are then stored in the dark at  $(23 \pm 1)$  °C for 60 min.

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