
Očesna optika - Nebrušena zglajena stekla očal - 3. del Specifikacije za prepustnost in preskusne metode (ISO 8980-3:2003)

Ophthalmic optics - Uncut finished spectacle lenses - Part 3: Transmittance specifications and test methods (ISO 8980-3:2003)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 8980-3:2005](https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005)

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 8980-3:2005

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>

English version

Ophthalmic optics - Uncut finished spectacle lenses - Part 3:
Transmittance specifications and test methods (ISO 8980-
3:2004)

Optique ophtalmique - Verres de lunettes finis non
détourés - Partie 3: Spécifications relatives au facteur de
transmission et méthodes d'essai (ISO 8980-3:2004)

This European Standard was approved by CEN on 8 September 2003.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>



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

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

EN ISO 8980-3:2004 (E)

Foreword

This document (EN ISO 8980-3:2004) has been prepared by Technical Committee ISO/TC 172 "Optics and optical instruments" in collaboration with Technical Committee CEN/TC 170 "Ophthalmic optics", the secretariat of which is held by DIN.

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 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document supersedes EN ISO 8980-3 :1999.

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

Endorsement notice

The text of ISO 8980-3:2004 has been approved by CEN as EN ISO 8980-3:2004 without any modifications.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 8980-3:2005

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>

**Ophthalmic optics — Uncut finished
spectacle lenses —**

**Part 3:
Transmittance specifications and test
methods**

iTeh STANDARD PREVIEW

(standards.iteh.ai)

Optique ophtalmique — Verres de lunettes finis non détournés —

*Partie 3: Spécifications relatives au facteur de transmission et
méthodes d'essai*

SIST EN ISO 8980-3:2005

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 8980-3:2005

<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	2
5 Requirements	2
5.1 General	2
5.2 General transmittance requirements	2
5.3 Requirements for driving	2
5.4 Transmittance requirements for special types of spectacle lenses	2
5.5 Resistance to radiation.....	4
6 Testing.....	4
6.1 General	4
6.2 Spectral transmittance	4
6.3 Luminous transmittance and relative visual attenuation coefficient (quotient).....	4
6.4 Ultraviolet transmittance	5
6.5 Transmittance properties of photochromic spectacle lenses and photochromic specimens.....	5
6.6 Test methods for polarizing spectacle lenses	7
6.7 Determination of resistance to radiation	9
7 Information.....	9
Annex A (normative) Spectral weighting functions for calculating relative visual attenuation quotients	10
Annex B (normative) Calculation of solar UV transmittance values	12
Annex C (informative) Spectral radiation risks.....	14
Bibliography	15

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 8980-3 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*, Subcommittee SC 7, *Ophthalmic optics and instruments*.

This second edition cancels and replaces the first edition (ISO 8980-3:1999), subclause 6.5 of which has been technically revised.

ISO 8980 consists of the following parts, under the general title *Ophthalmic optics — Uncut finished spectacle lenses*:

- iTeh STANDARD PREVIEW**
(standards.iteh.ai)
- SIST EN ISO 8980-3:2005
<https://standards.iteh.ai/catalog/standards/sist/c4fc3b08-67d8-444f-b529->
- *Part 1: Specifications for single-vision and multifocal lenses-8980-3-2005*
 - *Part 2: Specifications for progressive power lenses*
 - *Part 3: Transmittance specifications and test methods*
 - *Part 4: Specifications and test methods for anti-reflective coatings*

Ophthalmic optics — Uncut finished spectacle lenses —

Part 3: Transmittance specifications and test methods

1 Scope

This part of ISO 8980 specifies requirements for the transmittance properties of uncut finished spectacle lenses.

This part of ISO 8980 is not applicable to

- spectacle lenses having particular transmittance or absorption characteristics prescribed for medical reasons;
- products where specific personal protective equipment transmittance standards apply.

NOTE Optical and geometric requirements for uncut finished spectacle lenses are specified in ISO 8980-1 and ISO 8980-2.

2 Normative references

[SIST EN ISO 8980-3:2005](#)

[standards.iteh.ai/catalog/standards/sist/c4f3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005](#)

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 13666, *Ophthalmic optics — Spectacle lenses — Vocabulary*

ISO 14889, *Ophthalmic optics — Spectacle lenses — Fundamental requirements for uncut finished lenses*

ISO/CIE¹⁾ 10526, *CIE standard illuminants for colorimetry*

ISO/CIE 10527, *CIE standard colorimetric observers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13666 apply.

1) International Commission on Illumination, Kegelgasse 27, A-1030 Vienna.

4 Classification

Spectacle lenses are classified with respect to transmittance as follows:

- a) clear spectacle lenses;
- b) uniformly tinted spectacle lenses;
- c) gradient-tinted spectacle lenses;
- d) photochromic spectacle lenses;
- e) polarizing spectacle lenses.

NOTE Two or more of the above classifications may be combined.

5 Requirements

5.1 General

The requirements shall apply at a temperature of $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and shall apply to the design reference point, unless specified otherwise. Measurements shall be made with a test beam having a minimum width of 5 mm in any direction.

5.2 General transmittance requirements

The general transmittance requirements specified in ISO 14889 shall apply.

Spectacle lenses shall be attributed to five luminous transmittance categories as specified in Table 1, and shall be tested as described in Clause 6.

NOTE Table 1 also includes the UV requirements for spectacle lenses, but those spectacle lenses of category 0 for which no specific claim is made as to UV transmittance performance are excluded from the UV requirements of Table 1.

For categories 0, 1, 2 and 3 the luminous transmittance τ_v of the spectacle lens at the design reference point shall not lie outside the limits of the stated category by more than 2 % absolute.

For category 4, the luminous transmittance τ_v of the spectacle lens at the design reference point shall not lie outside the limits of that category by more than 20 % relative to the stated luminous transmittance.

5.3 Requirements for driving

Spectacle lenses to be used by vehicle drivers shall conform to the specific requirements for transmittance specified in ISO 14889.

5.4 Transmittance requirements for special types of spectacle lenses

5.4.1 Photochromic spectacle lenses

5.4.1.1 General

When tested by the methods described in 6.5, the luminous transmittance values of a photochromic spectacle lens in its faded and in its darkened state shall be used to identify the appropriate categories in accordance with Table 1.

Table 1 — Categories for luminous transmittance and the related permissible transmittance in the ultraviolet solar spectral range

Categories	Visible spectral range		Ultraviolet spectral range	
	Range of luminous transmittance τ_v		Maximum value of solar UV-A transmittance τ_{SUVA}	Maximum value of solar UV-B transmittance τ_{SUVB}
	from over %	to %	over 315 nm to 380 nm UV-A	over 280 nm to 315 nm UV-B
0	80,0	100	τ_v	τ_v
1	43,0	80,0		0,125 τ_v
2	18,0	43,0		
3	8,0	18,0	0,5 τ_v	1,0 % absolute
4	3,0	8,0		

NOTE 1 Photochromic spectacle lenses are usually attributed to two categories, corresponding to the faded state and to the darkened state.

NOTE 2 The UV requirements of photochromic spectacle lenses in the darkened state may be checked in the faded state, if the UV requirements for the darkened state are met in the faded state.

NOTE 3 It is recommended that uniform or gradient tints should be ordered by reference to a manufacturer's identification code, name or reference number.

SIST EN ISO 8980-3:2005

<https://standards.iteh.ai/catalog/standards/sist/c4f3b08-67d8-444f-b529-a6b4afa4d190/sist-en-iso-8980-3-2005>

5.4.1.2 Photochromic response

When tested by the methods described in 6.5.3.1 to 6.5.3.3, the ratio of the luminous transmittance of a photochromic specimen (see 6.5.1) in its faded state $\tau_v(0)$ and, after 15 min irradiation, in its darkened state $\tau_v(15)$ shall be at least 1,25, i.e.

$$\frac{\tau_v(0)}{\tau_v(15)} \geq 1,25 \quad (1)$$

5.4.1.3 Photochromic response at various temperatures (optional)

If photochromic temperature sensitivity is stated, it shall be determined by measuring the luminous transmittance of the specimen (see 6.5.1) in the darkened state $\tau_v(15)$ using the procedure described in 6.5.3.6 at 5 °C, 23 °C and 35 °C.

NOTE The manufacturer may use additional temperatures, provided this information is made available.

5.4.1.4 Photochromic response at moderate light levels (optional)

If the photochromic response at moderate light levels is stated, it shall be determined by measuring the luminous transmittance of the specimen (see 6.5.1) in the darkened state $\tau_v(15)$ using the procedure described in 6.5.3.4 after exposure to the illumination specified in 6.5.2.1 attenuated to an intensity of 30 %.