
**Očesna optika - Kontaktne leče in izdelki za vzdrževanje kontaktnih leč -
Označevanje - Dopolnilo A1 (ISO 11978:2017/DAM 1:2020)**

Ophthalmic optics - Contact lenses and contact lens care products - Labelling -
Amendment 1 (ISO 11978:2017/DAM 1:2020)

Optique ophtalmique - Lentilles de contact et produits d'entretien des lentilles de contact
- Étiquetage - Amendement 1 (ISO 11978:2017/DAM 1:2020)

Ta slovenski standard je istoveten z: prEN ISO 11978:2017

ICS:

11.040.70 Oftalmološka oprema Ophthalmic equipment

SIST EN ISO 11978:2017/oprA1:2020 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/b0d40808-60c3-438d-80f0-4538edd182a8/sist-en-iso-11978-2017-oprA1-2020>

DRAFT AMENDMENT

ISO 11978:2017/DAM 1

ISO/TC 172/SC 7

Secretariat: DIN

Voting begins on:
2020-01-28Voting terminates on:
2020-04-21

Ophthalmic optics — Contact lenses and contact lens care products — Labelling

AMENDMENT 1

Optique ophtalmique — Lentilles de contact et produits d'entretien des lentilles de contact — Étiquetage
AMENDEMENT 1

ICS: 11.040.70

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/b0d40808-60c3-438d-8010-4538ecd182a8/sist-en-iso-11978-2017-oprA1-2020>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO 11978:2017/DAM 1:2020(E)

© ISO 2020

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/b0d40808-60c3-438d-8000-4538ecd182a8/sist-en-iso-11978-2017-oprA1-2020>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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 172, *Optics and photonics*, Subcommittee SC 1, *Ophthalmic optics and instruments*.

This document amends the third edition (ISO 11978:2017).

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

- detailed description of calculation of legibility requirements;
- addition of informative [Annex A](#);
- addition of references to the Bibliography.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/b0d40808-60c3-438d-80f0-4538ecd182a8/sist-en-iso-11978-2017-oprA1-2020>

Ophthalmic optics — Contact lenses and contact lens care products — Labelling

AMENDMENT 1

4.1, third paragraph

Replace the third paragraph with the following:

All written information and symbols intended for the user shall be designed to have a minimum height of 0,7 mm for black text on a white background. All other colour combinations shall be designed with a minimum height of 0,7 mm and a contrast of at least 3:1 between the colour of the text and the colour of the background as computed using the colours' red, green, and blue (RGB) values.

NOTE Online calculators exist to compute contrast based on RGB values. Examples are given in [Annex A](#).

Add [Annex A](#) as follows:

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/b0d40808-60c3-438d-8000-4538ecd182a8/sist-en-iso-11978-2017-oprA1-2020>

Annex A (informative)

Calculation of contrast between text and background

A.1 General

This annex provides guidance on calculating contrast between text and background based on the colour of both the text and the background.

A.2 Principle

A.2.1 RGB colour space model

The RGB colour space basis is the three colours red, green, and blue. The colour space model utilizes intensity values for each colour to describe a gamut of colours. The gamut is created by adding varying amounts of red, green, and blue. The amounts vary from 0, black, to a set value for the maximum intensity and fully saturated colour. A common scheme is to use 8 bits, the integer values from 0 to 255, to specify the amount of red, green, and blue.

A.2.2 sRGB colour space model

The standard RGB (sRGB) colour space is a device-independent model. The model uses the same colourimetric RGB definitions as the RGB colour space, but further specifies display and reference conditions.

A.3 Computing contrast

A.3.1 General

In the sRGB colour space model with 8-bit values for each colour ranging from 0 to 255, the transformation from RGB 8-bit to sRGB is nonlinear:

$$\begin{aligned} R'_{\text{sRGB}} &= R_{\text{8bit}} / 255 \\ G'_{\text{sRGB}} &= G_{\text{8bit}} / 255 \\ B'_{\text{sRGB}} &= B_{\text{8bit}} / 255 \end{aligned} \tag{A.1}$$

$$\begin{aligned} \text{If } R'_{\text{sRGB}} \leq 0,04045 \text{ then } R_{\text{sRGB}} &= R'_{\text{sRGB}} / 12,92 \\ \text{else } R_{\text{sRGB}} &= ((R'_{\text{sRGB}} + 0,055) / 1,055)^{2,4} \\ \text{If } G'_{\text{sRGB}} \leq 0,04045 \text{ then } G_{\text{sRGB}} &= G'_{\text{sRGB}} / 12,92 \\ \text{else } G_{\text{sRGB}} &= ((G'_{\text{sRGB}} + 0,055) / 1,055)^{2,4} \\ \text{If } B'_{\text{sRGB}} \leq 0,04045 \text{ then } B_{\text{sRGB}} &= B'_{\text{sRGB}} / 12,92 \\ \text{else } B_{\text{sRGB}} &= ((B'_{\text{sRGB}} + 0,055) / 1,055)^{2,4} \end{aligned} \tag{A.2}$$

The relative luminance (L) from IEC 61966-2-1 for a given colour in the sRGB colour space model is:

$$L = 0,2126R_{\text{sRGB}} + 0,7152G_{\text{sRGB}} + 0,0722B_{\text{sRGB}} \tag{A.3}$$

NOTE The term “luminance” in this use represents the Y tristimulus value from CIE 1931 as stated in IEC 61966-2-1.

The contrast between the text and the background is:

$$\text{If } L_{\text{text}} > L_{\text{background}} \text{ then} \\ \text{Contrast} = \frac{(L_{\text{text}} + 0,05)}{(L_{\text{background}} + 0,05)} \quad (\text{A.4})$$

$$\text{Or if } L_{\text{background}} > L_{\text{text}} \text{ then} \\ \text{Contrast} = \frac{(L_{\text{background}} + 0,05)}{(L_{\text{text}} + 0,05)} \quad (\text{A.5})$$

Note that for the given definitions, contrast will always be greater than 1, and is typically written as a ratio of Contrast:1. Black text on a white background has a contrast of 21:1, which is the maximum.

A.3.2 Example of text and background colours with acceptable contrast

Starting with descriptions of colour in the RGB 8-bit colour space, assume text that is a shade of orange (R = 255, G = 144, B = 51) on a background that is a shade of blue (R = 4, G = 16, B = 240).

The computed contrast between text and background is 3,974:1. This is an example of an acceptable combination of text and background colours since the contrast is greater than 3:1.

The computed values leading to contrast are given in [Table A.1](#) and [Table A.2](#).

Table A.1 — Example text and background colour values in RGB 8-bit and sRGB colour space models

Parameter	RGB 8-bit	sR'G'B'	sRGB
Text			
R	255	1,0000	1,0000
G	144	0,5647	0,2789
B	51	0,2000	0,0331
Background			
R	4	0,0157	0,0012
G	16	0,0627	0,0052
B	240	0,9412	0,8714

Table A.2 — Luminance and contrast for example text and background colours in [Table A.1](#)

Parameter	Luminance	Contrast
Text	0,4145	-
Background	0,0669	-
Contrast	-	3,974

A.3.3 Example of text and background colours with unacceptable contrast

Starting with descriptions of colour in the RGB 8-bit colour space, assume text that is a shade of greenish-blue (R = 0, G = 152, B = 175) on a background that is a shade of orange (R = 255, G = 215, B = 130).

The computed contrast between text and background is 2,495:1. This is an example of an unacceptable combination of text and background colours since the contrast is less than 3:1.