



SLOVENSKI STANDARD SIST EN ISO 2813:2015

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Nadomešča:
SIST EN ISO 2813:1999

Barve in laki - Ugotavljanje vrednosti sijaja pod koti 20, 60 in 85 stopinj (ISO 2813:2014)

Paints and varnishes - Determination of gloss value at 20 degrees, 60 degrees and 85 degrees (ISO 2813:2014)

Beschichtungsstoffe - Bestimmung des Glanzwertes unter 20°, 60° und 85° (ISO 2813:2014)

Peintures et vernis - Détermination de l'indice de brillance à 20 degrés, 60 degrés et 85 degrés (ISO 2813:2014)

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ICS:

87.040

Barve in laki

Paints and varnishes

SIST EN ISO 2813:2015

en

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NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 2813

October 2014

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Supersedes EN ISO 2813:1999

English Version

Paints and varnishes - Determination of gloss value at 20 degrees, 60 degrees and 85 degrees (ISO 2813:2014)

Peintures et vernis - Détermination de l'indice de brillance à 20 degrés, 60 degrés et 85 degrés (ISO 2813:2014)

Beschichtungsstoffe - Bestimmung des Glanzwertes unter 20°, 60° und 85° (ISO 2813:2014)

This European Standard was approved by CEN on 24 August 2014.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 2813:2014) has been prepared by Technical Committee ISO/TC 35 "Paints and varnishes" in collaboration with Technical Committee CEN/TC 139 "Paints and varnishes" 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 April 2015, and conflicting national standards shall be withdrawn at the latest by April 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 2813:1999.

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

Endorsement notice

The text of ISO 2813:2014 has been approved by CEN as EN ISO 2813:2014 without any modification.

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INTERNATIONAL
STANDARD

ISO
2813

Fourth edition
2014-10-01

**Paints and varnishes — Determination
of gloss value at 20°, 60° and 85°**

*Peintures et vernis — Détermination de l'indice de brillance à 20°, 60°
et 85°*

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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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This fourth edition cancels and replaces the third edition (ISO 2813:1994), which has been technically revised. It also incorporates the Technical Corrigendum ISO 2813:1994/Cor.1:1997.

The main technical changes are:

- a) the title has been changed;
- b) the scope has been extended to include gloss measurement of metallic coatings;
- c) the term "specular gloss" has been replaced by "gloss";
- d) the gloss value is indicated in gloss units (GU);
- e) a new annex ([Annex A](#)) concerning possible sources of error has been added;
- f) a new annex ([Annex B](#)) concerning calibration standards has been added;
- g) a new annex ([Annex C](#)) concerning gloss calculation of primary reference standards has been added;
- h) a new annex ([Annex D](#)) concerning details on precision has been added;
- i) the precision data are the results of a large interlaboratory test.

Paints and varnishes — Determination of gloss value at 20°, 60° and 85°

1 Scope

This International Standard specifies a method for determining the gloss of coatings using the three geometries of 20°, 60° or 85°. The method is suitable for the gloss measurement of non-textured coatings on plane, opaque substrates.

NOTE On test specimens different from these mentioned above, comparative gloss measurements are possible. However, it is not ensured that the obtained gloss values correspond to the visual gloss perception (see [Annex A](#)).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1514, *Paints and varnishes — Standard panels for testing*

ISO 2808, *Paints and varnishes — Determination of film thickness*

ISO 4618:2014, *Paints and varnishes — Terms and definitions*

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3 Terms and definitions

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For the purposes of this document, the terms and definitions given in ISO 4618 and the following apply.

3.1

gloss

optical property of a surface, characterized by its ability to reflect light specularly

Note 1 to entry: Examples of degrees of gloss are high gloss, gloss, silk gloss, semigloss, satin, matt, and dead matt.

[SOURCE: ISO 4618:2014, 2.132]

3.2

geometry

identification of a method of gloss measurement using a specified angle with assigned apertures

3.3

gloss value

ratio multiplied by 100 of the luminous flux reflected from a specimen to that reflected by a glass surface with a refractive index of 1,567 at a wavelength of 587,6 nm in specular direction for a specified reflection angle and specified aperture angles of light source and receptor

Note 1 to entry: The gloss value is indicated in gloss units (GU). It is not permitted to interpret and express gloss values as “% reflection”.

Note 2 to entry: Gloss values measured on coatings are expressed rounded to the nearest integer (without decimals).

Note 3 to entry: To define the gloss scale, polished black glass with a refractive index of 1,567 at a wavelength of 587,6 nm is assigned to the value of 100 for 20°, 60° and 85° geometries.

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Note 4 to entry: A glass surface with a reflective index of 1,567 at a wavelength of 546,1 nm (which is the central wavelength of the spectral luminous efficiency function) may be used.

Note 5 to entry: The gloss value is influenced by the surface characteristics, e.g. roughness, texture, structure, of the sample.

4 Principle

With a reflectometric apparatus, gloss values are determined on coated surfaces, correlating with the visual gloss perception. In this context (glossmeter), the ratio of the gloss of the coating and the gloss of a polished plane glass plate with specified reference refractive index is obtained.

The method of gloss measurement is specified by the following parameters:

- measuring angles;
- field stop apertures;
- spectral adaptation;
- reference refractive index.

5 Basic principles of the gloss measurement

Gloss is a visual perception caused by looking at surfaces. The specular reflection of objects is even more distinct when light is reflected more directionally from the surface. The incident light is reflected on high-gloss surfaces only in the main specular direction. On matt surfaces the light is not only reflected in the main specular direction but also diffusely scattered in all solid angles. The more uniformly the light is scattered into the space the smaller is the intensity of the directed component and the matter the surface appears.

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The principle of gloss measurement is based on the measurement of the directionally reflected light. In this context its intensity is measured in a defined angular field around the reflection angle. The intensity of the reflected light depends on the surface material and the incident angle. Accordingly, on coated surfaces with increasing incident angle more light is reflected. The remaining light is refracted at the interface air/coating, and within the coating diffusion and/or absorption of the light occurs.

The gloss values are not related to the intensity of the incident light but to the reflection properties of a black, polished glass standard with specified refractive index.

For different viewing angles the gloss perception can vary widely. For example matt surfaces can appear glossy under grazing incidence of light and low viewing angle, because under these reflection conditions a lot of light is reflected directionally and also the intensity of diffusion is low.

[Figure 1](#) illustrates the relation between the gloss perception of visually equally classified coating specimens (from matt to glossy) and the assigned gloss values for the measuring angles of 20°, 60° and 85°.

EXAMPLE Visual classification 9 corresponds to 35 GU under 20°, 70 GU under 60° and 95 GU under 85°.