SLOVENSKI STANDARD
SIST EN ISO 2808:2019

01-november-2019

Nadomešča:
SIST EN ISO 2808:2007

Barve in laki - Ugotavljanje debeline plasti (ISO 2808:2019)

Paints and varnishes - Determination of film thickness (ISO 2808:2019)

Beschichtungsstoffe - Bestimmung der Schichtdicke (ISO 2808:2019)

Peintures et vernis - Détermination de l'épaisseur du feuil (ISO 2808:2019)

Ta slovenski standard je istoveten z: **EN ISO 2808:2019**

ICS:

87.040	Barve in laki	Paints and varnishes

SIST EN ISO 2808:2019 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 2808

September 2019

ICS 87.040

Supersedes EN ISO 2808:2007

English Version

Paints and varnishes - Determination of film thickness (ISO 2808:2019)

Peintures et vernis - Détermination de l'épaisseur du feuil (ISO 2808:2019)

Beschichtungsstoffe - Bestimmung der Schichtdicke (ISO 2808:2019)

This European Standard was approved by CEN on 21 July 2019.

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

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Ref. No. EN ISO 2808:2019 E

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European foreword

This document (EN ISO 2808:2019) 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of an identical text or by endorsement, at the latest by March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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.

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Endorsement notice

The text of ISO 2808:2019 has been approved by CEN as EN ISO 2808:2019 without any modification.

INTERNATIONAL STANDARD

ISO 2808

Fifth edition
2019-07

Paints and varnishes — Determination of film thickness

Peintures et vernis — Détermination de l'épaisseur du feuil

Reference number
ISO 2808:2019(E)

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Published in Switzerland

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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 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 35, *Paints and varnishes*, SC 9, *General test methods for paints and varnishes.*

This fifth edition cancels and replaces the fourth edition (ISO 2808:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

— the terms and definitions have been updated to ISO 4618 and ISO/IEC Guide 99;

— the principle has been revised;

— white-light interferometer has been added as method 6C;

— the terahertz method has been added as method 11;

— the existing methods have been adapted to the current state of metrology;

— the characterisation of the methods and procedures in Annex A have been revised;

— information in Annex A on the precision of the individual methods has been adapted to current standards;

— the references to test standards and constructions standards in Annex A have been updated;

— former Clause 7 on measurement of the film thickness on rough surfaces has been moved to Annex B;

— Annex C, on factors which influence measuring accuracy when measurements are performed on wood has been added.

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 consistently enumerates the individual coatings applied in a multi-layer system by referring to the first coating applied on the substrate as coating 1. Some other standards referring to individual test methods enumerate in reverse order.

Paints and varnishes — Determination of film thickness

1 Scope

This document describes methods for measuring the thickness of coatings applied to a substrate. Methods for determining wet-film thickness, dry-film thickness and the film thickness of uncured powder layers are described.

For each method described, this document provides an overview of the field of application, existing standards and the precision.

Information on measuring film thickness on rough surfaces is given in Annex B.

Information on measuring film thickness on wooden substrates is given in Annex C.

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 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

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

ISO 8503-1, *Preparation of steel substrates before application of paints and related products — Surface roughness characteristics of blast-cleaned steel substrates — Part 1: Specifications and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces*

3 Terms and definitions

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

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/

3.1
film thickness
distance between the surface of the film and the surface of the substrate

3.2
wet-film thickness
thickness of a freshly applied wet coating material, measured immediately after application

3.3
dry-film thickness
thickness of a coating remaining on the surface when the coating has hardened

3.4
thickness of uncured powder layer
thickness of a freshly applied coating material in powder form, measured immediately after application and before stoving

3.5
relevant surface area
part of an object covered or to be covered by the coating and for which the coating is essential for serviceability and/or appearance

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.6
test area
representative part of the relevant surface area within which an agreed number of single measurements is made as a spot-check

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.7
measurement area
area over which a single measurement is made

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.8
minimum local film thickness
lowest value of the local film thickness found on the relevant surface area of a particular test specimen

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.9
maximum local film thickness
highest value of the local film thickness found on the relevant surface area of a particular test specimen

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.10
mean film thickness
arithmetic mean of all the individual *dry-film thicknesses* (3.3) in the test area or the result of a gravimetric determination of the thickness

Note 1 to entry: Measurement of this property is only required for the extended evaluation of film thickness measurements; see Clause 7, k) and l).

3.11
calibration
operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication

Note 1 to entry: A calibration may be expressed by a statement, calibration function, calibration diagram, calibration curve, or calibration table. In some cases, it may consist of an additive or multiplicative correction of the indication with associated measurement uncertainty.

Note 2 to entry: Calibration should not be confused with adjustment of a measuring system, often mistakenly called "self-calibration", nor with verification of calibration.

Note 3 to entry: Often, the first step alone in the above definition is perceived as being calibration.

[SOURCE: ISO/IEC Guide 99:2007, 2.39]

3.12
verification
provision of objective evidence that a given item fulfils specified requirements

EXAMPLE 1 Confirmation that a given reference material as claimed is homogeneous for the quantity value and measurement procedure concerned, down to a measurement portion having a mass of 10 mg.

EXAMPLE 2 Confirmation that performance properties or legal requirements of a measuring system are achieved.

EXAMPLE 3 Confirmation that a target measurement uncertainty can be met.

Note 1 to entry: When applicable, measurement uncertainty should be taken into consideration.

Note 2 to entry: The item may be, e.g. a process, measurement procedure, material, compound, or measuring system.

Note 3 to entry: The specified requirements may be, e.g. that a manufacturer's specifications are met.

Note 4 to entry: Verification in legal metrology, as defined in VIML, and in conformity assessment in general, pertains to the examination and marking and/or issuing of a verification certificate for a measuring system.

Note 5 to entry: Verification should not be confused with calibration. Not every verification is a validation.

Note 6 to entry: In chemistry, verification of the identity of the entity involved, or of activity, requires a description of the structure or properties of that entity or activity.

[SOURCE: ISO/IEC Guide 99:2007, 2.44]

3.13
reference material
RM
material, sufficiently homogeneous and stable with reference to specified properties, which has been established to be fit for its intended use in measurement or in examination of nominal properties

Note 1 to entry: Examination of a nominal property provides a nominal property value and associated uncertainty. This uncertainty is not a measurement uncertainty.

Note 2 to entry: Reference materials with or without assigned quantity values can be used for measurement precision control whereas only reference materials with assigned quantity values can be used for calibration or measurement trueness control.

Note 3 to entry: "Reference material" comprises materials embodying quantities as well as nominal properties.

EXAMPLE 1 Examples of reference materials embodying quantities:

a) water of stated purity, the dynamic viscosity of which is used to calibrate viscometers;

b) human serum without an assigned quantity value for the amount-of-substance concentration of the inherent cholesterol, used only as a measurement precision control material;

c) fish tissue containing a stated mass fraction of a dioxin, used as a calibrator.

EXAMPLE 2 Examples of reference materials embodying nominal properties:

a) colour chart indicating one or more specified colours;

b) DNA compound containing a specified nucleotide sequence;

c) urine containing 19-androstenedione.

Note 4 to entry: A reference material is sometimes incorporated into a specially fabricated device.

EXAMPLE 3 Substance of known triple-point in a triple-point cell.

EXAMPLE 4 Glass of known optical density in a transmission filter holder.