

Paints and varnishes - Determination of hiding power -
Part 3: Determination of hiding power of paints for
masonry, concrete and interior use (ISO 6504-3:2019)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 6504-3:2019 sisaldab Euroopa standardi EN ISO 6504-3:2019 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 6504-3:2019 consists of the English text of the European standard EN ISO 6504-3:2019.
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English Version

Paints and varnishes - Determination of hiding power -
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Peintures et vernis - Détermination du pouvoir
masquant - Partie 3: Détermination du pouvoir
masquant pour des peintures bâtiments, béton et
utilisation en intérieur (ISO 6504-3:2019)

Beschichtungsstoffe - Bestimmung des Deckvermögens
- Teil 3: Bestimmung des Deckvermögens von
Beschichtungen für mineralische Untergründe und
Beton (ISO 6504-3:2019)

This European Standard was approved by CEN on 22 October 2019.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 6504-3:2019) 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of an identical text or by endorsement, at the latest by June 2020, and conflicting national standards shall be withdrawn at the latest by June 2020.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.

This document supersedes EN ISO 6504-3:2007.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 6504-3:2019 has been approved by CEN as EN ISO 6504-3:2019 without any modification.

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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).

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

This third edition cancels and replaces the second edition (ISO 6504-3:2006), which has been technically revised. The main changes compared to the previous edition are as follows:

- the title and Scope have been restricted to paints for masonry and concrete;
- a definition for light-coloured paint has been added;
- a new method (method C), which is suitable for waterborne coating materials only, has been introduced;
- the determination of the mass per unit area of the dry coating and the determination of the practical spreading rate have been deleted (ISO 3233-3 can be used instead);
- the reference to a fixed spreading rate has been deleted from the foreword, scope and test report (it had already been deleted from the procedure in the previous edition);
- the historic precision values for methods A and B have been deleted from the normative part and information on a new interlaboratory comparison on method C has been added in an informative annex, i.e. [Annex A](#);
- the normative references have been updated.

A list of all parts in the ISO 6504 series can be found on the ISO website.

Introduction

Two techniques are available for substrate preparation and measurement when determining the hiding power of paints for masonry and concrete:

- a) application to colourless, transparent foil, the coated foil being subsequently placed in turn over black and white panels;
- b) direct application to black and white charts.

The spreading rate is important for the determination of the hiding power ratio. The spreading rate can be either determined according to ISO 3233-3 or according to another simplified method described in the standards applicable to coating materials for interior walls and ceilings as specified in EN 13300.

Because different operators using the same draw-down device will obtain coatings differing significantly in thickness, an absolute method for the determination of opacity is described in this document. Collaborative trials between groups of experts from a number of countries have shown that reproducible results can be obtained by determination of the hiding power corresponding to a precisely specified spreading rate by interpolation between measurements at two or more measured coating thicknesses nearby and enclosing the specified spreading rate. The interested parties might agree on the specified spreading rate.

The methods are based on the observation that hiding power is an approximately linear function of reciprocal spreading rate, over a restricted coating thickness range which also corresponds to that used for normal application of white or light-coloured paints. It is thus possible to interpolate graphically or by computation, with satisfactory accuracy, between results obtained with coatings of different thicknesses.

Paints and varnishes — Determination of hiding power —

Part 3:

Determination of hiding power of paints for masonry, concrete and interior use

1 Scope

This document specifies methods for determining the hiding power given by paint coats of white or light colours of tristimulus values Y and Y_{10} greater than 25, applied to a black and white chart, or to a colourless transparent foil. In the latter case the tristimulus values Y and Y_{10} are measured over black and white panels. Subsequently, the hiding power is calculated from these tristimulus values.

This document also specifies a simple method for calculating the spreading rate for paints with a volatile matter content with low evaporation speed, e.g. coatings for interior walls and ceilings as specified in EN 13300.

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 1513, *Paints and varnishes — Examination and preparation of test samples*

ISO 2811 (all parts), *Paints and varnishes — Determination of density*

ISO 3251, *Paints, varnishes and plastics — Determination of non-volatile-matter content*

ISO 3233-3:2015, *Paints and varnishes — Determination of the percentage volume of non-volatile matter — Part 3: Determination by calculation from the non-volatile-matter content determined in accordance with ISO 3251, the density of the coating material and the density of the solvent in the coating material*

ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling*

EN 13300, *Paints and varnishes — Water-borne coating materials and coating systems for interior walls and ceilings — Classification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

light-coloured paint

coating with tristimulus values Y and Y_{10} greater than 25, measured with a spectrophotometer on a black and white substrate

[SOURCE: ISO 6504-1:2019, 3.1]