

INTERNATIONAL
STANDARD

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Paints and varnishes — Determination
of the overcoatability and
recoatability of a coating

*Peintures et vernis — Évaluation des possibilités d'application d'une
couche supplémentaire du même produit ou d'un autre produit de
peinture*



Reference number
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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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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*.

Introduction

The terms “overcoatability” and “recoatability” are used differently. Hence, there are numerous different test methods. Aiming for a standardization and facilitation of communication between contractor and customer, in this International Standard a test method has been prepared which determines the procedure for testing the overcoatability and/or recoatability of a coating.

“Overcoatability” is applicable to the multi-coat system in manufacture, e.g. applying a top coat to the priming coat.

“Recoatability” is applicable to repairing or recoating of already completed constructions, e.g. during or immediately after installation.

It was impossible to specify a suitable test method for all indicated cases and to combine them in a International Standard.

The limitation to “unaged” coatings should be understood as coatings not yet exposed to corrosion stress or similar stress which might influence the recoatability performance. In the case of arising difficulties concerning the interpretation of the term, e.g. in regard to priming coats as protection for intermediate storage or transport when it takes some time before another coating material is applied, the contracting parties should especially agree upon the approach.

Note that the recoatability performance for certain coating materials might be time-dependent. Furthermore, it is recommended that an intermediate drying/hardening should be adapted to in-practice conditions, if such a particular intermediate drying/hardening is specified or agreed before recoating.

This International Standard leaves various aspects subject to agreement to a much larger extent than common in other standards. However, achieving a wide-ranging applicability of the procedure only allowed such an approach.

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Paints and varnishes — Determination of the overcoatability and recoatability of a coating

1 Scope

This International Standard specifies a method for testing the overcoatability and recoatability of unaged single-coat or multi-coat systems using a coating material which is intended for repairing damaged areas during or after installation.

Since the testing of overcoatability and recoatability can be conducted under different conditions, this International Standard only specifies one procedure and indicates the basic parameters.

The existing single-coat or multi-coat system is indicated as coating A and the new single-coat or multi-coat system as coating B. The same applies analogously for the respective coating materials.

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 all amendments) applies.

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

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

ISO 1520, *Paints and varnishes — Cupping test*

ISO 2409, *Paints and varnishes — Cross-cut test*

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

ISO 2813, *Paints and varnishes — Determination of specular gloss of non-metallic paint films at 20°, 60° and 85°*

ISO 2815, *Paints and varnishes — Buchholz indentation test*

ISO 3668, *Paints and varnishes — Visual comparison of the colour of paints*

ISO 9117-5, *Paints and varnishes — Drying tests — Part 5: Modified Bandow-Wolff test*

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

3 Terms and definitions

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

3.1

recoatability

ability of a film of a coating material to accept a further coat of the same coating material

3.2

overcoatability

ability of a film of a coating material to accept a coat of a different coating material

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4 Sampling

Take a representative sample of the coating material to be tested as specified in ISO 15528. Examine each sample in accordance with ISO 1513 and prepare for further testing.

For testing completed coatings take samples in a manner so they are valid as representative samples.

5 Preparation of test coatings

As the substrate of coating A, use the material for which the coating material is intended.

Clean and degrease the substrate in accordance with ISO 1514.

Apply and aftertreat, if applicable, coating A as agreed.

6 Preparation of test

Slightly dry-grind (or down to the substrate, respectively) 1/3 or 2/3 of the surfaces of air-drying coatings after reaching degree of drying 6 in accordance with ISO 9117-5 and oven-dried coatings after taking from the oven and cooling down to room temperature, using 400 grade abrasive paper. The last third will not be ground.

When coating A consists of several layers and these layers are included in the testing of recoatability, additional test panels, on which the coating is being ground down to the respective layer, shall be produced.

Clean the surfaces with a smooth brush or cloth after grinding.

Precisely measure the film thickness of coating A before and after grinding in accordance with one of the methods specified in ISO 2808.

7 Procedure and evaluation

7.1 Application of the coating material

Immediately after cleaning coating A, apply and dry/harden the coating material B as agreed.

Precisely measure the film thickness of coatings A and B after drying in accordance with one of the methods specified in ISO 2808.

7.2 Observations during recoating

Observe during recoating and during drying time (see [7.3](#)), if surface defects occur, e.g. swelling, lifting of the film, rippling, wetting defects, colour changes, on the ground or unground surfaces and on the edges of the test panels. Report the time when such defects are first observed.

7.3 Tests after drying/hardening or stoving

7.3.1 General

Conduct the tests in accordance with [7.3.2](#) to [7.3.6](#) on air-drying coatings after reaching degree of drying 6 in accordance with ISO 9117-5 and on oven-drying coatings after 12 h after taking from the oven at the earliest. In both cases conduct the tests on the ground as well as on the unground surfaces of the test panels. Additional tests, e.g. for blistering and cracking or with particular stress, shall be specifically agreed.

7.3.2 Cross-cut test

Conduct the cross-cut test in accordance with ISO 2409.

NOTE 1 For filled surfaces a cross-cut test is inappropriate.

NOTE 2 The adhesion between the coatings is often deteriorated when exposed to moisture.

7.3.3 Buchholz indentation test

Conduct the Buchholz indentation test in accordance with ISO 2815.

7.3.4 Cupping test

Conduct the cupping test in accordance with ISO 1520.

NOTE For certain coating systems (e.g. using meagre fillers or thick film fillers) a cupping test is uninformative.

7.3.5 Gloss

Measure the gloss in accordance with ISO 2813.

7.3.6 Colour

Determine any resulting colour change in accordance with ISO 3668, if not otherwise agreed.

7.4 Evaluation

Determine the outcome of the test by comparing the results for the test panels with those from panels with only one coating.

8 Test report

The test report shall contain at least the following information:

- a) the type and identification of coating materials A and B;
- b) a reference to this International Standard (ISO 16927:2014);
- c) the material (material number, if applicable), surface properties and pre-treatment of the substrate;
- d) the processing of the coating materials (e.g. spraying), drying/hardening conditions (e.g. 20 min at 140 °C or 48 h air-dried at 23 °C and 50 % relative humidity) and drying/hardening time until grinding coating A;
- e) the film thickness of the ground and unground surfaces of coating A and the coatings A and B, in micrometres;
- f) the results of the test according to 7.2, indicating the period of time until the defects occur, depending on type of defect in seconds, minutes, or hours;
- g) the results of the tests according to 7.4;
- h) any deviations, by agreement or otherwise, of test conditions specified in this International Standard;
- i) any unusual features (anomalies) observed during the test;
- j) the date of the test.

Bibliography

[1] ISO 4618, *Paints and varnishes — Terms and definitions*

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