BS EN ISO 16927:2014

BSI Standards Publication

Paints and varnishes — Determination of the overcoatability and recoatability of a coating (ISO 16927:2014)

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN ISO 16927:2014.

The UK participation in its preparation was entrusted to Technical Committee STI/10, Test methods for paints.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2014. Published by BSI Standards Limited 2014

ISBN 978 0 580 75222 3

ICS 87.040

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2014.

Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 16927

January 2014

ICS 87.040

English Version

Paints and varnishes - Determination of the overcoatability and recoatability of a coating (ISO 16927:2014)

Peintures et vernis - Évaluation des possibilités d'application d'une couche supplémentaire du même produit ou d'un autre produit de peinture (ISO 16927:2014)

Beschichtungsstoffe - Prüfung der Überarbeitbarkeit und Überlackierbarkeit einer Beschichtung (ISO 16927:2014)

This European Standard was approved by CEN on 6 December 2013.

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.

CEN members are the national standards bodies of 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 United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

© 2014 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN ISO 16927:2014 E

Foreword

This document (EN ISO 16927:2014) 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 July 2014, and conflicting national standards shall be withdrawn at the latest by July 2014.

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.

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 16927:2014 has been approved by CEN as EN ISO 16927:2014 without any modification.

Contents

Page

© ISO 2014 – All rights reserved

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*.

© ISO 2014 – All rights reserved

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.

© ISO 2014 – All rights reserved

INTERNATIONAL STANDARD **ISO 16927:2014(E)**

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 is 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

© ISO 2014 – All rights reserved

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.

© ISO 2014 – All rights reserved

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.

© ISO 2014 – All rights reserved

Bibliography

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

© ISO 2014 – All rights reserved

This page deliberately left blank

This page deliberately left blank

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™