

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

BS EN ISO 15184:2012



BSI Standards Publication

Paints and varnishes — Determination of film hardness by pencil test (ISO 15184:2012)

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

raising standards worldwide™



This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of EN ISO 15184:2012. It supersedes BS 3900-E19:1999 which is withdrawn.

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 2012. Published by BSI Standards Limited 2012

ISBN 978 0 580 70811 4

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 30 November 2012.

Amendments issued since publication

Date	Text affected
------	---------------

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

October 2012

ICS 87.040

English Version

Paints and varnishes - Determination of film hardness by pencil test (ISO 15184:2012)

Peintures et vernis - Détermination de la dureté du feuillet par l'essai de dureté crayon (ISO 15184:2012)

Beschichtungsstoffe - Bestimmung der Härte von Beschichtungen durch Eindruckversuch mit Bleistiften (ISO 15184:2012)

This European Standard was approved by CEN on 13 October 2012.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

Foreword

This document (EN ISO 15184:2012) 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 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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 organisations 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 15184:2012 has been approved by CEN as a EN ISO 15184:2012 without any modification.

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Apparatus	2
6 Sampling	3
7 Test panels	3
7.1 Substrate	3
7.2 Shape and dimensions	3
7.3 Preparation and coating	3
7.4 Drying and conditioning	4
7.5 Thickness of coating	4
8 Procedure	4
9 Types of defect	5
10 Precision	5
11 Test report	5
Annex A (informative) Applicability of the pencil hardness test	6
Bibliography	7

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15184 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 15184:1998), which has been technically revised. The main changes are:

- a) the incorrect instruction in 9.5 in the previous edition (now 8.5) to push the test panel has been corrected to an instruction to push the pencil;
- b) the requirement in 9.5 in the previous edition (now 8.5) that the pencil move at 0,5 mm/s to 1 mm/s has been replaced by a requirement that the speed simply be uniform;
- c) the use of propelling/mechanical pencils is now permitted;
- d) the supplementary test conditions (formerly Annex A) have been incorporated in the test report;
- e) a new Annex A giving information on the applicability of the method has been added.

This is a preview of "BS EN ISO 15184:2012". [Click here to purchase the full version from the ANSI store.](#)

Paints and varnishes — Determination of film hardness by pencil test

IMPORTANT — The electronic file of this document contains colours which are considered to be useful for the correct understanding of the document. Users should therefore consider printing this document using a colour printer.

1 Scope

This International Standard specifies a method for determining the film hardness by pushing pencils of known hardness over the film.

The test can be performed on a single coating of a paint, varnish or related product, or on the upper layer of a multi-coat system.

This rapid test has not been found to be useful in comparing the pencil hardness of different coatings. It is more useful in providing relative ratings for a series of coated panels exhibiting significant differences in pencil hardness.

The method is applicable only to smooth surfaces.

2 Normative references

The following referenced documents are indispensable for the application 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 1514, *Paints and varnishes — Standard panels for testing*

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

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

pencil hardness

resistance of the surface of a paint film to marking, or the formation of some other defect, as a result of the action of a pencil, with a lead of specified dimensions, shape and hardness, which is pushed across the surface

4 Principle

A pencil lead with a defined geometry is pushed over the paint surface at an angle of 45°, exerting a force of 7,5 N on the surface. The hardness of the pencil lead is increased in steps until the surface of the coating is marked by visible defects. The test result is the highest hardness at which no marking occurs.