



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 5600-5-8 : 1999

(ISO 7784-1 : 1997)

Testing methods for paints— Part 5 : Mechanical property of film— Section 8 : Abrasion resistance (Rotating abrasive-paper-covered wheel method)

ICS 87.040

Descriptors : paints, painting, membranes, mechanical testing, wear resistance,
abrasive paper, wear tests

Reference number : JIS K 5600-5-8 : 1999 (E)

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

JIS K 5400 corresponding to this Standard will be withdrawn and replaced with this Standard in April 2002, at the time of three years passed after establishment of this Standard.

Consequently it is recommended to comply with this Standard.

JIS K 5600 consists of the following parts.

JIS K 5600 Part 1 Section 1 to Section 8 *General rule*
 JIS K 5600 Part 2 Section 1 to Section 7 *Characteristics and stability of paints*
 JIS K 5600 Part 3 Section 1 to Section 6 *Film formability*
 JIS K 5600 Part 4 Section 1 to Section 7 *Visual characteristics of film*
 JIS K 5600 Part 5 Section 1 to Section 11 *Mechanical property of film*
 JIS K 5600 Part 6 Section 1 to Section 3 *Chemical property of film*
 JIS K 5600 Part 7 Section 1 to Section 8 *Long-period performance of film*
 JIS K 5600 Part 8 Section 1 to Section 6 *Evaluation of degradation of paint coatings*

JIS K 5600-5 consists of the following sections under the title of "Testing methods for paints—Part 5 : Mechanical property of film".

JIS K 5600 Part 5 Section 1 *Bend test (cylindrical mandrel)*
 JIS K 5600 Part 5 Section 2 *Cupping test*
 JIS K 5600 Part 5 Section 3 *Falling-weight test*
 JIS K 5600 Part 5 Section 4 *Scratch hardness (Pencil method)*
 JIS K 5600 Part 5 Section 5 *Scratch hardness (Stylus method)*
 JIS K 5600 Part 5 Section 6 *Adhesion test (Cross-cut test)*
 JIS K 5600 Part 5 Section 7 *Adhesion test (Pull-off methods)*
 JIS K 5600 Part 5 Section 8 *Abrasion resistance (Rotating abrasive-paper-covered wheel method)*
 JIS K 5600 Part 5 Section 9 *Abrasion resistance (Rotating abrasive rubber wheel method)*
 JIS K 5600 Part 5 Section 10 *Abrasion resistance (Reciprocating test panel method)*
 JIS K 5600 Part 5 Section 11 *Washability*

Date of Establishment: 1999-04-20

Date of Public Notice in Official Gazette: 1999-04-20

Investigated by: Japanese Industrial Standards Committee
 Divisional Council on Chemical

JIS K 5600-5-8:1999, First English edition published in 2000-10

Translated and published by: Japanese Standards Association
 4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

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 the original JIS is to be the final authority.

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Printed in Japan

**Testing methods for paints—
Part 5 : Mechanical property of film—
Section 8 : Abrasion resistance (Rotating
abrasive-paper-covered wheel method)**

Introduction This Japanese Industrial Standard has been prepared based on ISO 7784-1 *Paints and varnishes—Determination of resistance to abrasion—Part 1 : Rotating abrasive-paper-covered wheel method* issued in 1997 as the first edition without changing the technical contents.

The portions underlined with dots in this Standard are not stated in the original International Standard.

Remarks : This Standard is one of three sections of JIS K 5600-5 dealing with the determination of resistance to abrasion of a dried film of paint, varnish or related product.

JIS K 5600-5-8 ; ISO 7784-1 : *Abrasion resistance (Rotating abrasive-paper-covered wheel method)*

JIS K 5600-5-9 ; ISO 7784-2 : *Abrasion resistance (Rotating abrasive rubber wheel method)*

JIS K 5600-5-10 ; ISO 7784-3 : *Abrasion resistance (Reciprocating test panel method)*

Sections 8 and 10 both specify a method using abrasive paper for determination of the resistance to abrasion. In section 9, a method using abrasive rubber wheels is described. The user of JIS K 5600-5 should note that the methods using abrasive paper (sections 8 and 10) are the preferred methods.

1 Scope This Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

This Standard specifies a method for determining the resistance to abrasion of a dried film of paint, varnish or related product, using abrasive paper attached to wheels and abrading by making a rotary movement.

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. If the indication of the year of coming into effect is given to this referred standard, only the edition of indicated year constitutes the provision of this Standard but the revision and amendment made thereafter are not applied. The normative references without the indication of the year of coming into effect apply limiting only to the most recent edition (including the amendment).

JIS K 5600-1-2 *Testing methods for paints—Part 1 : General rule—Section 2 : Sampling of products*

Remarks : ISO 1512 : 1991 *Paints and varnishes—Sampling of products in liquid or paste form* is identical with the said standard.

JIS K 5600-1-3 Testing methods for paints—Part 1 : General rule—Section 3 : Examination and preparation of samples for testing

Remarks : ISO 1513 : 1992 *Paints and varnishes—Examination and preparation of samples for testing* is identical with the said standard.

JIS K 5600-1-4 Testing methods for paints—Part 1 : General rule—Section 4 : Standard panels for testing

Remarks : ISO 1514 : 1993 *Paints and varnishes—Standard panels for testing* is identical with the said standard.

JIS K 5600-1-7 Testing methods for paints—Part 1 : General rule—Section 7 : Determination of film thickness

Remarks : ISO 2808 : 1997 *Paints and varnishes—Determination of film thickness* is equivalent to the said standard.

ISO 48 : 1994 *Rubber—Determination of hardness (hardness between 30 and 85 IRHD)*

ISO 6507-1 : 1997 *Metallic materials—Vickers hardness test—Part 1 : Test method*

3 Principle A dried paint or varnish film is abraded, under specified conditions, with abrasive paper which is attached to the wheels of an abrasion testing machine. During the test, the wheels are loaded with specified weights. The resistance to abrasion is calculated as the loss in mass after a specified number of abrasion cycles or as the number of cycles required to remove the coating down to the next layer or down to the substrate.

4 Required supplementary information For any particular application, the test method specified in this Standard needs to be completed by supplementary information. The items of supplementary information are given in Annex A.

5 Apparatus

5.1 Abrasion testing machine⁽¹⁾ Consisting of the elements described in 5.1.1 to 5.1.4 (see also Fig. 1).

Note ⁽¹⁾ This apparatus is commercially available from Teledyne Taber, 455 Bryant Street, North Tonawanda, NY 14120, USA.