



SLOVENSKI STANDARD
SIST ISO 7784-1:1998
01-junij-1998

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Paints and varnishes -- Determination of resistance to abrasion -- Part 1: Rotating
abrasive-paper-covered wheel method

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Peintures et vernis -- Détermination de la résistance à l'abrasion -- Partie 1: Méthode
utilisant une roue revêtue de papier abrasif

[SIST ISO 7784-1:1998](https://standards.iteh.ai/catalog/standards/sist/5ea304d5-a642-41e5-9dd7-61a597c47ec3/sist-iso-7784-1-1998)

Ta slovenski standard je istoveten z: **ISO 7784-1:1997**

ICS:

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Paints and varnishes

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INTERNATIONAL
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ISO
7784-1

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**Paints and varnishes — Determination of
resistance to abrasion —**

Part 1:
Rotating abrasive-paper-covered wheel
method

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*Peintures et vernis — Détermination de la résistance à l'abrasion —
Partie 1: Méthode utilisant une roue revêtue de papier abrasif*



Reference number
ISO 7784-1:1997(E)

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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.

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.

International Standard ISO 7784-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

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ISO 7784 consists of the following parts, under the general title *Paints and varnishes — Determination of resistance to abrasion*:

- Part 1: Rotating abrasive-paper-covered wheel method
- Part 2: Rotating abrasive rubber wheel method
- Part 3: Reciprocating test panel method

Annex A forms an integral part of this part of ISO 7784. Annexes B and C are for information only.

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International Organization for Standardization

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Introduction

This document is one of three parts of ISO 7784 dealing with the determination of resistance to abrasion of a dried film of paint, varnish or related product.

Parts 1 and 3 both specify a method using abrasive paper for determination of the resistance to abrasion. In part 2, a method using abrasive rubber wheels is described. The user of ISO 7784 should note that the methods using abrasive paper (parts 1 and 3) are the preferred methods.

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Paints and varnishes — Determination of resistance to abrasion —

Part 1:

Rotating abrasive-paper-covered wheel method

1 Scope

This part of ISO 7784 is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

This part of ISO 7784 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.

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2 Normative references

SIST ISO 7784-1:1998

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The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7784. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7784 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 1512:1991, *Paints and varnishes — Sampling of products in liquid or paste form*.

ISO 1513:1992, *Paints and varnishes — Examination and preparation of samples for testing*.

ISO 1514:1993, *Paints and varnishes — Standard panels for testing*.

ISO 2808:—¹⁾, *Paints and varnishes — Determination of film thickness*.

ISO 6507-1:1982, *Metallic materials — Hardness test — Vickers test — Part 1: HV 5 to HV 100*.

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

1) To be published. (Revision of ISO 2808:1991)

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 part of ISO 7784 needs to be completed by supplementary information. The items of supplementary information are given in annex A.

5 Apparatus

5.1 Abrasion testing machine²⁾, consisting of the elements described in 5.1.1 to 5.1.4 (see also figure 1).

5.1.1 Turntable, capable of rotating at a speed of (60 ± 2) rpm, on which the test panel can be centrally mounted and firmly attached.

5.1.2 Two rubber wheels, each of thickness $(12,7 \pm 0,2)$ mm and overall diameter $(50,0 \pm 0,2)$ mm, the periphery of which is covered with a rubber strip of thickness 6 mm and hardness (50 ± 5) IRHD (determined in accordance with ISO 48). The wheels shall be mounted on and able to rotate freely about horizontal spindles. Their internal faces shall be $(53,0 \pm 0,5)$ mm apart and the hypothetical line through the two spindles shall be $(19,1 \pm 0,1)$ mm away from the central axis of the turntable. The mass distribution within the assembly shall be such that each of the wheels exerts a force of $(1 \pm 0,02)$ N on the test panel.

5.1.3 Counter, to record the number of cycles (turns) made by the turntable.

5.1.4 Suction device, with two nozzles. One of the nozzles shall be positioned between the two abrading wheels and the other placed diametrically opposite the first. The distance between the axes of the two nozzles shall be (75 ± 2) mm and the distance between them and the test panel 1 mm to 2 mm.

When the suction nozzles are in position, the air pressure in the suction device shall be $1,5 \text{ kPa}^3)$ to $1,6 \text{ kPa}^3)$ lower than atmospheric pressure.

5.2 Weights, to enable the mass of each wheel to be increased by up to 1 kg.

5.3 Strips of abrasive paper, of width $(12 \pm 0,2)$ mm and approximate length 175 mm. The grade of abrasive paper shall be chosen by agreement between the interested parties.

NOTES

1 Several grades of abrasive paper are defined in the P series of the grain size standard published by the Federation of European Producers of Abrasive Products (FEPA)⁴⁾.

2 Self-adhesive abrasive paper is also available from some manufacturers.

5.4 Double-sided adhesive tape, in strips of width $(12 \pm 0,2)$ mm and approximate length 175 mm, for use if self-adhesive abrasive paper is not available.

5.5 Calibration panel, of thickness between 0,8 mm and 1 mm, for calibration of the apparatus (see annex B).

5.6 Balance, with an accuracy of 0,1 mg.

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

3) $1 \text{ kPa} = 10 \text{ mbar}$.

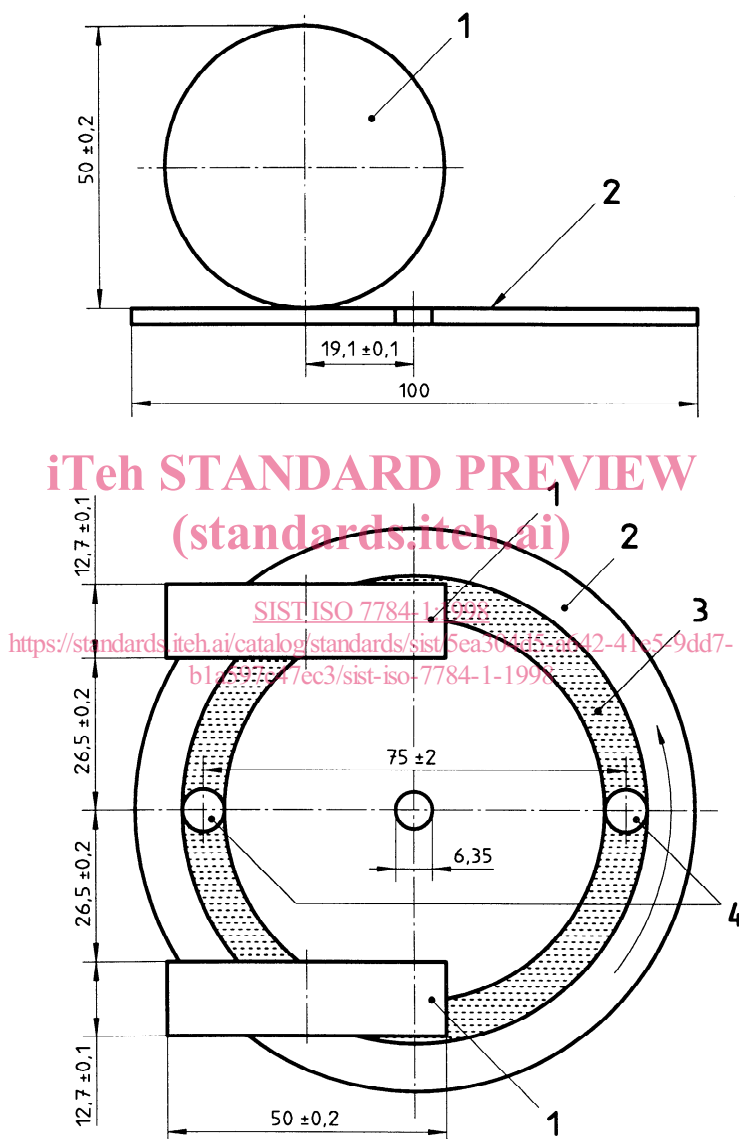
4) FEPA Standard 43-GB-1984, obtainable from the British Abrasive Federation, P.O. Box 58, Trafford Park Road, Trafford Park, Manchester M17 1JD, United Kingdom.

6 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multi-coat system), as described in ISO 1512.

Examine and prepare each sample for testing, as described in ISO 1513.

Dimensions in millimetres



Key

- 1 Abrasive wheels
- 2 Test specimen
- 3 Wear zone
- 4 Vacuum nozzles
 $\varnothing 8 \pm 0,5$

Figure 1 — Diagrammatic arrangement of apparatus