



SLOVENSKI STANDARD SIST EN ISO 868:2000

01-maj-2000

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Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:1985)

Kunststoffe und Hartgummi - Bestimmung der Eindruckhärte mit einem Durometer (Shore-Härte) (ISO 868:1985)

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Plastiques et ébonite - Détermination de la dureté par pénétration au moyen d'un duromètre (dureté Shore) (ISO 868:1985)

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Ta slovenski standard je istoveten z: **EN ISO 868:1997**

ICS:

83.080.01	Polimerni materiali na splošno	Plastics in general
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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 868

November 1997

ICS 83.080

Descriptors: see ISO document

English version

Plastics and ebonite - Determination of indentation hardness by
means of a durometer (Shore hardness) (ISO 868:1985)

Plastiques et ébonite - Détermination de la dureté par
pénétration au moyen d'un duromètre (dureté Shore) (ISO
868:1985)

Kunststoffe und Hartgummi - Bestimmung der
Eindruckhärte mit einem Durometer (Shore-Härte) (ISO
868:1985)

This European Standard was approved by CEN on 16 October 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard from Technical Committee ISO/TC 61 "Plastics" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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 May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 868:1985 has been approved by CEN as a European Standard without any modification.

SIST EN ISO 868:2000

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 291		Plastics - Standard atmospheres for conditioning and testing	EN ISO 291	1997

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International Standard



868

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)

Plastiques et ébonite — Détermination de la dureté par pénétration au moyen d'un duromètre (dureté Shore)

Second edition — 1985-09-15

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UDC 678.5/.8 : 620.178.15

Ref. No. ISO 868-1985 (E)

Descriptors : plastics, ebonite, tests, hardness tests, indentation hardness tests, determination, Shore hardness, test equipment, hardness testers.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 868 was prepared by Technical Committee ISO/TC 61, *Plastics*.

ISO 868 was first published in 1978. This second edition cancels and replaces the first edition, of which it constitutes a technical revision.

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Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)

1 Scope and field of application

1.1 This International Standard specifies a method for the determination of the indentation hardness of plastics and ebonite by means of durometers of two types: durometer type A is used for softer materials and durometer type D for harder materials (see the note in 8.2). The method permits measurement either of the initial indentation or of the indentation after a specified period of time, or both.

NOTE — The durometers and the methods specified in this International Standard are referred to as type A Shore and type D Shore durometers and durometer methods respectively.

1.2 This method is an empirical test intended primarily for control purposes. No simple relationship exists between indentation hardness determined by this method and any fundamental property of the material tested. For specification purposes, it is recommended that ISO 48, *Vulcanized rubbers — Determination of hardness (hardness between 30 and 85 IRHD)*, should be used for the softer materials.

2 References

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*.

ISO 7619, *Rubber — Determination of indentation hardness by means of pocket hardness meters*.¹⁾

3 Principle

Measurement of the penetration of a specified indenter forced into the material under specified conditions.

The indentation hardness is inversely related to the penetration and is dependent on the modulus of elasticity and the viscoelastic properties of the material. The shape of the indenter, the force applied to it and the duration of its application influence the results obtained so that there may be no simple relationship between the results obtained with one type of durometer and those obtained with either another type of durometer or another instrument for measuring hardness.

1) At present at the stage of draft.

4 Apparatus

Shore durometers, types A and D. The durometers consist of the following components:

4.1 Presser foot, with a hole of diameter between 2,5 and 3,5 mm, centred at least 6 mm from any edge of the foot.

4.2 Indenter, formed from a hardened steel rod of diameter between 1,10 and 1,40 mm, to the shape and dimensions shown in figure 1, for type A durometers, and figure 2, for type D durometers.

4.3 Indicating device, for reading the extent of protrusion of the point of the indenter beyond the face of the presser foot; this may be read directly in terms of units ranging from 0, for the full protrusion of $2,50 \pm 0,04$ mm, to 100 for nil protrusion obtained by placing the pressure foot and indenter in firm contact with a flat piece of glass.

NOTE — The device may include means for indicating the initial indentation obtained when the indenter is applied under load, to provide a maximum reading for use as an instantaneous reading if required (see 8.1).

4.4 Calibrated spring, for applying force to the indenter in accordance with one of the following equations:

$$a) F = 550 + 75 H_A$$

where

F is the applied force, in millinewtons;

H_A is the hardness reading on the type A durometer.

$$b) F = 445 H_D$$

where

F is the applied force, in millinewtons;

H_D is the hardness reading on the type D durometer.