EESTI STANDARD EVS-EN 23369:2000

Hermeetilised metallkeraamilised materjalid ja kõvasulamid. Tiheduse määramine

Impermeable sintered metal materials and hardmetals - Determination of density

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 23369:2000 sisaldab Euroopa standardi EN 23369:1993 ingliskeelset teksti.	This Estonian standard EVS-EN 23369:2000 consists of the English text of the European standard EN 23369:1993.
Standard on kinnitatud Eesti Standardikeskuse 11.01.2000 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 11.01.2000 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 77.160

EUROPEAN STANDARD

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English version

Impermeable sintered metal materials and hardmetals - Determination of density (ISO 3369:1975)

Matériaux en métal fritté imperméable et métaux-durs - Détermination de la masse volumique (ISO 3369:1975)

Undurchlässige Sintermetalle und Hartmetalle - Ermittlung der Dichte (ISO 3369:1975)

This European Standard was approved by CEN on 1993-04-02. 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.

The European Standards exist 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.

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

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

In 1992 ISO 3369:1975 "Impermeable sintered metal materials and hardmetals - Determination of density" was submitted to the CEN Primary Questionnaire procedure.

Following the positive result of the CEN/CS Proposal ISO 3369:1975 was submitted to the CEN Formal Vote. The result of the Formal Vote was positive.

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 October 1993, and conflicting national standards shall be withdrawn at the latest by October 1993.

According to the Internal Regulations of CEN/CENELEC, the following countries are bound to implement this European Standard :

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 3369:1975 was approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD ISO 3369

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

Impermeable sintered metal materials and hardmetals — Determination of density

Matériaux en métal fritté imperméable et métaux durs — Détermination de la masse volumique

First edition — 1975-09-01

UDC 669-492.8 : 531.75 **Ref. No. ISO 3369-1975 (E)**

Descriptors : powder metallurgy, sintered products, hardmetals, tests, measurement, density (mass/volume).

Price based on 3 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 3369 was drawn up by Technical Committee ISO/TC 119, *Powder metallurgical materials and products*, and circulated to the Member Bodies in March 1974.

It has been approved by the Member Bodies of the following countries:

Austria	Japan	Sweden
Bulgaria	Poland	Turkey
Canada	Portugal	United Kingdom
Chile	Romania	U.S.A.
France	South Africa, Rep. of	U.S.S.R.
Italy	Spain	Yugoslavia

The Member Body of the following country expressed disapproval of the document on technical grounds :

Ireland

Printed in Switzerland

Impermeable sintered metal materials and hardmetals — Determination of density

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of determining the density of impermeable sintered metal materials and hardmetals.

NOTE — For determination of density of permeable sintered metal materials, see ISO 2738, *Permeable sintered metal materials — Determination of density and open porosity.*

2 REFERENCES

ISO . . ., *Sintered metal materials, excluding hardmetals — Sampling.*[1)]

ISO . . ., *Hardmetals — Sampling and preparation of test pieces.*[1)]

3 PRINCIPLE

Weighing of a test piece first in air and then in a liquid, and determination of the density by calculation.

4 APPARATUS AND MATERIALS

4.1 Precision balance having a capacity which will permit readings within ± 0,1 mg on weighings up to 10 g and ± 0,001 % above 10 g.

The weights shall be calibrated and have a density not less than 7 g/cm^3.

4.2 Arrangement of racks or a **suspension wire** according to figures 1 and 2. In each case the suspension wire shall have a maximum diameter of 0,25 mm. Heavier gauge wire shall only be used if necessary to support the test piece.

4.3 Vessel for the weighing liquid. For test pieces of volume less than 10 cm^3 the vessel shall be dimensioned so that when the test piece is lowered into the liquid the rise in liquid level is less than 2,5 mm.

4.4 Distilled or de-ionized and preferably degassed water, to which 1 or 2 drops of a wetting agent have been added.

The following values shall be used for the density in air, ρ_w, of distilled water :

Temperature	ρ_w
°C	g/cm^3
15	0,998 1
16	0,997 9
17	0,997 7
18	0,997 6
19	0,997 4
20	0,997 2
21	0,997 0
22	0,996 7
23	0,996 5
24	0,996 3
25	0,996 0
26	0,995 8
27	0,995 5
28	0,995 2
29	0,994 9
30	0,994 6

NOTES

1 Other liquids may be used if their density in air at the testing temperature is known to four places of decimals.

2 Using brass weights in air, the value of ρ_w is 0,001 06 g/cm^3 smaller than the true density of water measured in a vacuum.

5 TEST PIECE

5.1 Sampling shall be carried out in accordance with ISO . . . or ISO . . .

5.2 The volume of the test piece shall be at least 0,5 cm^3. If it is required to determine the density of pieces having a volume less than 0,5 cm^3, group several pieces together to make one determination, provided that each piece has a volume not less than 0,05 cm^3.

1) In preparation.