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Permeable sintered metal materials — Determination of oil content

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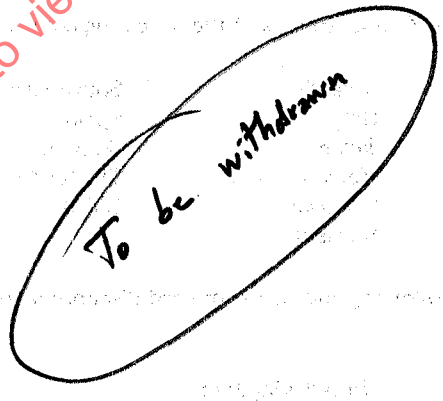

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FOREWORD

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 2737 was drawn up by Technical Committee ISO/TC 119, *Powder metallurgical materials and products,* and circulated to the Member Bodies in July 1972.

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

Australia	Ireland	South Africa, Rep. of
Austria	Italy	Spain
Canada	Japan	Sweden
Egypt, Arab Rep. of	Mexico	Thailand
France	Portugal	U.S.A.
Germany	Romania	

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

United Kingdom

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Permeable sintered metal materials — Determination of oil content

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the oil content of permeable sintered metal materials.

It applies in particular to the determination of the oil content in self-lubricating bearings.

2 REFERENCE

ISO 2738, *Permeable sintered metal materials — Determination of density and open porosity.*

3 PRINCIPLE

A sintered test piece is weighed before and after extraction of its oil content with an appropriate solvent. The oil content is calculated from the loss in mass.

4 APPARATUS

4.1 Analytical balance of sufficient capacity, capable of weighing the test piece to within an accuracy of 0,001 g.

4.2 Soxhlet extractor.

5 TEST PIECE

The test piece is generally the part itself. When the mass of the part is less than 10 g, several parts should be used to give a mass of approximately 10 g. In the case of large parts, the test piece is preferably obtained by breaking, in which case all pieces (not more than 200 g) of the whole part are to be tested.

NOTE — The same test piece may be used for the determination of density and porosity.

6 PROCEDURE

For test pieces up to a mass of 200 g, weigh the test piece to within 0,001 g, place it in the Soxhlet extractor and extract the oil using an appropriate solvent. Carry out the extraction for at least 3 h, then dry at a temperature of 20 to 50 °C above the boiling point of the solvent. Repeat the extraction and drying until the mass is constant to within 0,01 g.

7 EXPRESSION OF RESULTS

The oil content is given by the following formulae :

a) as a percentage by mass :

$$\frac{m_1 - m_2}{m_1} \times 100$$

b) as a percentage by volume :

$$\frac{m_1 - m_2}{\rho V_t} \times 100$$

c) as a percentage of the volume of the open pores :

$$\frac{m_1 - m_2}{\rho V_p} \times 100$$

where

m_1 is the initial mass;

m_2 is the mass after extraction;

ρ is the density of the oil;

V_t is the total apparent volume (see ISO 2738);

V_p is the volume of the open pores (see ISO 2738).

Percentages a) and b) shall be expressed to an accuracy of 0,1 % in absolute value.

Percentage c) shall be expressed to an accuracy of 2 % in absolute value.

8 TEST REPORT

The test report shall include the following information :

a) reference to this International Standard;

b) all details necessary for identification of the test piece;

c) the result obtained;

d) all operations not specified by this International Standard, or regarded as optional;

e) details of any occurrence which may have affected the result.

If necessary, the data required for the identification of the test piece shall be agreed between manufacturer and user.