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Permeable sintered metal materials — Determination of fluid permeability

Matériaux métalliques frittés perméables — Détermination de la perméabilité aux fluides

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Foreword

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This document was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 3 *Sampling and testing methods for sintered metal materials (excluding hardmetals)*.

This third edition cancels and replaces the second edition (ISO 4022:1987), of which it constitutes a minor revision with the following changes:

— Clause 3 and Clause 4 order reversed, and Clause 3 split into 3.1 and 3.2;

— 3.1.3, 3.1.4, 3.1.5, 3.1.13 and 3.1.14 editorially revised;

— Clause 3: Terminological entries ‘length’ and ‘dynamic viscosity’ removed;

— 6.1.1 and 6.1.2, Figures 1 and 2 and keys editorially revised;

— 7.1.2, first Formula removed and Formula (2) corrected, “l” changed to “1”;

— 8.3, Formula (12) corrected, “ρ” changed to “ϱ”.

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Permeable sintered metal materials — Determination of fluid permeability

1 Scope

This document specifies a method for the determination of the fluid permeability of permeable sintered metal materials in which the porosity is deliberately continuous or interconnecting, testing being carried out under such conditions that the fluid permeability can be expressed in terms of viscous and inertia permeability coefficients (see Annex A).

This document does not apply to very long hollow cylindrical test pieces of small diameter, in which the pressure drop of the fluid in passing along the bore of the cylinder might not be negligible compared with the pressure drop of the fluid passing through the wall thickness (see A.5).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2738, *Sintered metal materials, excluding hardmetals — Permeable sintered metal materials — Determination of density, oil content and open porosity*

3 Terms, definitions, symbols and units

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Terms and definitions

3.1.1
permeability
ability of a porous metal to pass a fluid under the action of a pressure gradient

3.1.2
test area
area of a porous metal normal to the direction of the fluid flow

3.1.3
thickness
dimension of the test piece in the direction of fluid flow

Note 1 to entry: For flat test pieces it is equal to the thickness.

Note 2 to entry: For hollow cylinders it is given by Formulae (2) to (6).

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