
INTERNATIONAL STANDARD



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Sintered hardmetals — Sampling and testing

Métaux-durs frittés — Échantillonnage et essais

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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 4489 was developed by Technical Committee ISO/TC 119, *Powder metallurgical materials and products*, and was circulated to the member bodies in April 1977.

It has been approved by the member bodies of the following countries :

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

The member body of the following country expressed disapproval of the document on technical grounds :

Ireland

Sintered hardmetals – Sampling and testing

1 SCOPE AND FIELD OF APPLICATION

This International Standard relates to the sampling and testing of sintered hardmetals for determination of their physical and mechanical properties.

2 REFERENCES

ISO 3326, *Hardmetals – Determination of (the magnetization) coercivity*.

ISO 3369, *Impermeable sintered metal materials and hardmetals – Determination of density*.

ISO 3738, *Hardmetals – Rockwell hardness test (scale A)*.

ISO 3878, *Hardmetals – Vickers hardness test*.

ISO 4499, *Hardmetals – Metallographic determination of microstructure*.¹⁾

ISO 4505, *Hardmetals – Metallographic determination of porosity and uncombined carbon*.¹⁾

3 DEFINITIONS

3.1 lot : A defined quantity of presumably uniform sintered parts of a single type, size and grade.

3.2 test sample : One or more units taken from a lot for the determination of properties.

4 SAMPLING

Hardmetal parts are supplied in a wide range of sizes and quantities and for a wide range of applications. Also, the determination of physical and mechanical properties is time consuming and sometimes of a destructive nature. It is therefore neither desirable nor practical to employ a sample quantity comparable with that normally employed for checking dimensional features. The degree of consistency of a lot can therefore only be determined economically in

the course of production control. For confirmation of the grade of hardmetal, it is usually sufficient to take a test sample of one unit.

5 TESTING

5.1 Tests which are usually carried out on a test sample are given in table 1.

TABLE 1

Type of testing	International Standard
Determination of coercivity	ISO 3326
Determination of density	ISO 3369
Determination of hardness HRA	ISO 3738
Determination of hardness HV	ISO 3878

5.2 Tests which may be carried out in special cases are given in table 2.

TABLE 2

Type of testing	International Standard
Determination of microstructure	ISO 4499
Determination of porosity and uncombined carbon	ISO 4505

6 TEST REPORT

Sintered products are frequently ordered in small quantities and taken from stock. Therefore, the identity of the lot cannot be retained and it must not be expected that a test report can be supplied with individual orders.

1) At present at the stage of draft.