
INTERNATIONAL STANDARD



3908

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Hardmetals — Determination of insoluble (free) carbon — Gravimetric method

Métaux durs — Détermination du carbone insoluble (libre) — Méthode gravimétrique

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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 3908 was drawn up by Technical Committee ISO/TC 119, *Powder metallurgical materials and products*, and was circulated to the Member Bodies in August 1975.

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

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

No Member Body expressed disapproval of the document.

Hardmetals – Determination of insoluble (free) carbon – Gravimetric method

1 SCOPE

This International Standard specifies a gravimetric method for the determination of the insoluble (free) carbon content of carbides and hardmetals.

2 FIELD OF APPLICATION

This method is applicable to

- carbides of hafnium, molybdenum, niobium, tantalum, titanium, vanadium, tungsten and zirconium,
- mixtures of these carbides and binder metals, free of lubricant,
- all grades of presintered or sintered hardmetals, produced from these carbides,

having an insoluble carbon content between 0,02 and 0,5 % (*m/m*).

3 REFERENCE

ISO 3907, *Hardmetals – Determination of total carbon – Gravimetric method.*

4 PRINCIPLE

Decomposition of the carbides and determination of the insoluble carbon by a gravimetric method.

5 REAGENTS

During the analysis, use only reagents of recognized analytical grade, and only distilled water or water of equivalent purity.

5.1 Nitric acid, ρ 1,20 g/ml.

Add 2 000 ml of nitric acid, ρ 1,42 g/ml, to 3 000 ml of water.

5.2 Hydrofluoric acid, ρ 1,12 g/ml.

5.3 Asbestos, pretreated.

Pretreat fine-fibrous asbestos at 800 to 1 000 °C under strongly oxidizing conditions for a minimum of 3 h. Store it in a desiccator.

CAUTION – Asbestos can be a danger to health and should not be inhaled. All operations with asbestos shall be carried out with care in well-ventilated areas to avoid scattering of the material.

6 APPARATUS

Ordinary laboratory apparatus and

6.1 Apparatus specified in ISO 3907.

6.2 Platinum dish, 200 ml.

6.3 Gooch crucible, porcelain or platinum.

NOTE – A ceramic filter may be used instead of the Gooch crucible and asbestos pad.

6.4 Vacuum filtration assembly.

7 SAMPLING

7.1 The sample shall be crushed to a powder in a mortar made of a material which does not alter the sample composition. The powder shall pass a 0,18 mm sieve.

7.2 The analysis shall be carried out on two or three test portions.

8 PROCEDURE

8.1 Test portion

Weigh, to the nearest 0,01 g, approximately 2,5 g of the test sample.