
International Standard



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

**Hardmetals — Chemical analysis by flame atomic
absorption spectrometry —
Part 1: General requirements**

Métaux-durs — Analyse chimique par spectrométrie d'absorption atomique dans la flamme — Partie 1: Caractéristiques générales

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (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 authorized 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 7627/1 was developed by Technical Committee ISO/TC 119, *Powder metallurgy*, and was circulated to the member bodies in August 1982.

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

Austria	Germany, F.R.	Spain
Brazil	Italy	Sweden
Bulgaria	Korea, Rep. of	Switzerland
China	Norway	United Kingdom
Czechoslovakia	Poland	USA
Egypt, Arab Rep. of	Romania	USSR
France	South Africa, Rep. of	

No member body expressed disapproval of the document.

Hardmetals – Chemical analysis by flame atomic absorption spectrometry – Part 1: General requirements

1 Scope

This part of ISO 7627 lays down general requirements for the chemical analysis of hardmetals by flame atomic absorption.

Subsequent parts of this International Standard (see the table) specify methods for determination of the content of the following elements by flame atomic absorption spectrometry.

calcium
cobalt
chromium
iron
potassium
magnesium
manganese
molybdenum
sodium
nickel
titanium
vanadium

2 Field of application

The method is applicable to

- carbides of chromium, niobium, tantalum, titanium, tungsten, vanadium,
- mixtures of these carbides and binder metals,
- all grades of presintered or sintered hardmetals, produced from these carbides,
- coated hardmetals, after total removal of coating,

with the elements shown in the table.

Table – ISO 7627 part number, elements and ranges covered in the relevant part

Relevant part of ISO 7627	Element	Range % (m/m)
7627/2	Ca, K, Mg, Na	0,001 to 0,02
7627/3	Co, Fe, Mn, Ni	0,01 to 0,5
7627/4	Mo, Ti, V	0,01 to 0,5
7627/5	Co, Fe, Mn, Mo, Ni, Ti, V	0,5 to 2
7627/6	Cr	0,01 to 2

NOTE – The method for the determination of chromium also permits determination of iron, nickel, cobalt and manganese within the range 0,01 to 2 % (m/m).

3 Principle

Dissolution of a test portion and determination by flame atomic absorption spectrometry.

4 Interfering elements

Effects of interference are minimized by using a similar matrix in test and calibration solutions.

5 Reagents

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

NOTE – In certain cases, reagents of higher purity should be used.

6 Apparatus

Ordinary laboratory apparatus and atomic absorption spectrometry apparatus.

NOTE – All measurement parameters should be chosen to give optimum sensitivity.

Single-element hollow-cathode lamps are recommended. The recommended instrument requirements are shown in the relevant parts of this International Standard.

7 Sampling

7.1 If necessary, the sample may be crushed in a mortar made of a material which does not alter the sample composition. If the sample contains lubricant, this shall be extracted before the analysis.

7.2 The analysis shall be carried out on at least three test portions.

8 Procedure

The procedure is given in the relevant parts of this International Standard.

9 Test report

The test report shall include the following information:

a) a reference to this International Standard;

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

c) the results obtained, i.e. the arithmetical mean;

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

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

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