Irish Standard
I.S. EN ISO 7625:2012

Sintered metal materials, excluding hardmetals - Preparation of samples for chemical analysis for determination of carbon content (ISO 7625:2012)

I.S. EN ISO 7625:2012

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English Version

Sintered metal materials, excluding hardmetals - Preparation of samples for chemical analysis for determination of carbon content (ISO 7625:2012)

Matériaux métalliques frittés, à l'exclusion des métaux-durs - Préparation des échantillons pour analyse chimique en vue du dosage du carbone (ISO 7625:2012)

Sintermetalle, ausgenommen Hartmetalle - Vorbereitung von Proben für die chemische Analyse zur Bestimmung des Kohlenstoffgehaltes (ISO 7625:2012)

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Foreword

This document (EN ISO 7625:2012) has been prepared by Technical Committee ISO/TC 119 "Powder metallurgy".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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Endorsement notice

The text of ISO 7625:2012 has been approved by CEN as a EN ISO 7625:2012 without any modification.

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I.S. EN ISO 7625:2012

INTERNATIONAL STANDARD

ISO 7625

Third edition
2012-11-15

Sintered metal materials, excluding hardmetals — Preparation of samples for chemical analysis for determination of carbon content

Matériaux métalliques frittés, à l'exclusion des métaux-durs — Préparation des échantillons pour analyse chimique en vue du dosage du carbone

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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 preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 7625 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 of ISO 7625 cancels and replaces the second edition (ISO 7625; 2006), which has been technically revised in Clause 6.

Introduction

The chemical analysis of sintered metal materials, excluding hardmetals, is carried out as it would be for solid metals, by using existing standard methods. However, as these sintered materials very often contain carbonaceous constituents, the correct determination of carbon content (free or total) requires that certain precautions be taken when preparing the sample for analysis from components.

Samples prepared in accordance with this International Standard may also be suitable for chemical analysis for other elements.

Sintered metal materials, excluding hardmetals — Preparation of samples for chemical analysis for determination of carbon content

1 Scope

This International Standard specifies methods for preparing a sample from one or more sintered parts to be analysed for free or total carbon content. Combined carbon is determined as the difference between total and free carbon. This standard covers the preparation of samples for the determination of carbon by a chemical method, i.e. combustion in oxygen and measurement of the carbon dioxide produced, in accordance with ISO 437. It does not cover the preparation of samples for carbon determination by physical methods, such as metallography or spectroscopy.

2 Normative references

The following referenced documents are indispensable for the application 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 437, *Steel and cast iron — Determination of total carbon content — Combustion gravimetric method*

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

3 Principle

Eliminate any impregnated or surface carbon using the procedures in Clause 5. Prepare samples for analysis by fragmentation or machining, taking care not to lose any free carbon.

4 Materials

This International Standard applies to parts in which carbon is uniformly distributed and present in the forms shown in Table 1. It does not apply to parts in which the carbon is not uniformly distributed throughout the part, including those parts with carburized or decarburized surfaces.

In instances where the carbon is not uniformly distributed, for example a case-hardened part, the method of selecting the sample should be agreed upon between the supplier and the purchaser.

The presence of carbonaceous materials in the pores or on the surface of the part to be analysed interferes with the determination of carbon, see Table 2.

Table 1 — Forms of carbon that can be determined by chemical analysis

Form of carbon	Typical materials	Comments
Combined carbon (as carbides or in solid solution)	Carbon-containing steels and super-alloys	Determined as the difference between total and free carbon
Free carbon	Bronze and steel containing graphite; material impregnated with a graphite-containing liquid	Determined by combustion of the residue of selective dissolution of the metal in the sample.
Total carbon		Determined by direct combustion of the sample