Irish Standard
I.S. EN ISO 4489:2019

Hardmetals - Sampling and testing (ISO 4489:2019)

I.S. EN ISO 4489:2019

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN ISO 4489:2019 is the adopted Irish version of the European Document EN ISO 4489:2019, Hardmetals - Sampling and testing (ISO 4489:2019)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4489

October 2019

ICS 77.160

Supersedes EN 24489:1993

English Version

Hardmetals - Sampling and testing (ISO 4489:2019)

Métaux-durs - Échantillonnage et essais (ISO 4489:2019)

Hartmetalle - Probenahme und Prüfung (ISO 4489:2019)

This European Standard was approved by CEN on 4 August 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Page

European foreword

This document (EN ISO 4489:2019) has been prepared by Technical Committee ISO/TC 119 "Powder metallurgy" in collaboration with CCMC.

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of an identical text or by endorsement, at the latest by April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 24489:1993.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 4489:2019 has been approved by CEN as EN ISO 4489:2019 without any modification.

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INTERNATIONAL STANDARD

ISO 4489

Second edition
2019-09

Hardmetals — Sampling and testing

Métaux-durs — Échantillonnage et essais

Reference number
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Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 4, *Sampling and testing methods for hardmetals*.

This second edition cancels and replaces the first edition (ISO 4489:1978), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the title has been changed to "*Hardmetals — Sampling and testing*";

— Clause 2 has been revised;

— in Table 1, second row: the reference to ISO 3326 has been replaced;

— in Table 1, fourth row: the reference has been replaced by ISO 3738-1 and ISO 3738-2;

— in Table 1, fifth row: the reference to ISO 3878 has been replaced by ISO 6507-1, ISO 6507-2, ISO 6507-3 and ISO 6507-4;

— in Table 2, a new second row has been added;

— in Table 2, third row: the reference has been replaced by ISO 4499-1, ISO 4499-2 and ISO 4499-3;

— in Table 2, fourth row: the reference has been replaced by ISO 4499-4;

— in Table 2, a new fifth row has been added;

— the Bibliography has been added.

Hardmetals — Sampling and testing

1 Scope

This document specifies procedures for sampling and testing of hardmetals for the determination of their physical and mechanical characteristics.

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 3369, *Impermeable sintered metal materials and hardmetals — Determination of density*

ISO 3738-1, *Hardmetals — Rockwell hardness test (scale A) — Part 1: Test method*

ISO 3738-2, *Hardmetals — Rockwell hardness test (scale A) — Part 2: Preparation and calibration of standard test blocks*

ISO 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method*

ISO 6507-2, *Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines*

ISO 6507-3, *Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks*

ISO 6507-4, *Metallic materials — Vickers hardness test — Part 4: Tables of hardness values*

3 Terms and definitions

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
lot
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* (3.1) for the determination of characteristics

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 characteristics 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.