

**SLOVENSKI STANDARD
SIST EN ISO 4491-2:2000****01-december-2000**

**Metallic powders - Determination of oxygen content by reduction methods - Part 2:
Loss of mass on hydrogen reduction (hydrogen loss) (ISO 4491-2:1997)**

Metallic powders - Determination of oxygen content by reduction methods - Part 2: Loss of mass on hydrogen reduction (hydrogen loss) (ISO 4491-2:1997)

Metallpulver - Bestimmung des Sauerstoffanteils durch Reduktionsverfahren - Teil 2: Massenverlust durch Reduktion mit Wasserstoff (ISO 4491-2:1997)

Poudres métalliques - Dosage de l'oxygène par les méthodes de réduction - Partie 2: Perte de masse par réduction dans l'hydrogène (perte dans l'hydrogène) (ISO 4491-2:1997)

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Ta slovenski standard je istoveten z: EN ISO 4491-2:1999**ICS:**

77.160 Metalurgija prahov Powder metallurgy

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4491-2

July 1999

ICS 77.160

Supersedes EN 24491-2:1993

English version

Metallic powders - Determination of oxygen content by reduction
methods - Part 2: Loss of mass on hydrogen reduction
(hydrogen loss) (ISO 4491-2:1997)

Poudres métalliques - Dosage de l'oxygène par les
méthodes de réduction - Partie 2: Perte de masse par
réduction dans l'hydrogène (perte dans l'hydrogène) (ISO
4491-2:1997)

Metallpulver - Bestimmung des Sauerstoffanteils durch
Reduktionsverfahren - Teil 2: Massenverlust durch
Reduktion mit Wasserstoff (ISO 4491-2:1997)

This European Standard was approved by CEN on 3 June 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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EN ISO 4491-2:1999

Foreword

The text of the International Standard from Technical Committee ISO/TC 119 "Powder metallurgy" of the International Organization for Standardization (ISO) has been taken over as an European Standard by CEN/CS.

This European Standard replaces EN ISO 24491-2:1993.

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 January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4491-2:1997 has been approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)**Normative references to international publications
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 4491-1	1989	Metallic powders - Determination of oxygen content by reduction methods - Part 1: General guidelines	EN 24491-1	1993

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(standards.iteh.ai)[SIST EN ISO 4491-2:2000](https://standards.iteh.ai/catalog/standards/sist/1b651ec3-ccc4-4198-8c90-e773e5357807/sist-en-iso-4491-2-2000)<https://standards.iteh.ai/catalog/standards/sist/1b651ec3-ccc4-4198-8c90-e773e5357807/sist-en-iso-4491-2-2000>

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INTERNATIONAL STANDARD

ISO 4491-2

Second edition
1997-04-01

Metallic powders — Determination of oxygen content by reduction methods —

Part 2:

Loss of mass on hydrogen reduction
(hydrogen loss)

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*Poudres métalliques — Dosage de l'oxygène par les méthodes de
réduction —*

*Partie 2: Perte de masse par réduction dans l'hydrogène (perte dans
l'hydrogène)*

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e773e5357807/sist-en-iso-4491-2-2000](https://standards.iteh.ai/catalog/standards/sist/1b651ec3-cce4-4198-8c90-e773e5357807/sist-en-iso-4491-2-2000)



Reference number
ISO 4491-2:1997(E)

ISO 4491-2:1997(E)

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.

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.

International Standard ISO 4491-2 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*, Subcommittee SC 2, *Sampling and testing methods for powders (including powders for hardmetals)*.

This second edition cancels and replaces the first edition (ISO 4491-2:1989), table 1 and clause 7 of which have been technically revised.

ISO 4491 consists of the following parts, under the general title *Metallic powders — Determination of oxygen content by reduction methods*:

- Part 1: *General guidelines*
- Part 2: *Loss of mass on hydrogen reduction (hydrogen loss)*
- Part 3: *Hydrogen-reducible oxygen*
- Part 4: *Total oxygen by reduction-extraction*

Annex A forms an integral part of this part of ISO 4491.

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Metallic powders — Determination of oxygen content by reduction methods —

Part 2:

Loss of mass on hydrogen reduction (hydrogen loss)

1 Scope

This part of ISO 4491 specifies a method for the determination of the relative loss of mass which a metallic powder undergoes when heated in a stream of pure dry hydrogen under specified conditions.

The purpose of this test is to evaluate a chemical powder characteristic which is of importance to the powder metallurgical industry. The test is not intended as a means for the determination of the content of specific elements. (See annex A and ISO 4491-1.)

The test method is applicable to unalloyed, partially alloyed and completely alloyed powders of the metals listed in table 1 (see 6.1). It is not applicable to lubricated powders or to mixtures of metal powders.

The results can be influenced by the presence of reducible, oxidizable or volatile metals, metalloids or compounds (see annex A). The results obtained on such powders shall be used with caution and their interpretation shall be subject to agreement between supplier and user.

This part of ISO 4491 shall be read in conjunction with ISO 4491-1.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 4491. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4491 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4491-1:1989, *Metallic powders — Determination of oxygen content by reduction methods — Part 1: General guidelines*.

3 Reagents and materials

3.1 Hydrogen, with a maximum oxygen content of 0,005 % (*m/m*) and a dew point not higher than – 45 °C.

3.2 Nitrogen or argon, with a maximum oxygen content of 0,005 % (*m/m*) and a dew point not higher than – 45 °C.

(See also 6.3, third paragraph.)