

<b>STN</b>	<b>Jemná keramika (špeciálna keramika, špeciálna technická keramika) Stanovenie oxidačnej odolnosti neoxidovej monolitckej keramiky (ISO 20509: 2003)</b>	<b>STN EN ISO 20509</b>  72 7558
------------	---	--

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of oxidation resistance of non-oxide monolithic ceramics (ISO 20509:2003)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/23

Obsahuje: EN ISO 20509:2023, ISO 20509:2003

**136894**



EUROPEAN STANDARD

EN ISO 20509

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2023

ICS 81.060.30

English Version

## Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of oxidation resistance of non-oxide monolithic ceramics (ISO 20509:2003)

Céramiques techniques - Détermination de la résistance à l'oxydation des céramiques monolithiques (ISO 20509:2003)

Hochleistungskeramik - Bestimmung der Beständigkeit von nichtoxidischer monolithischer Keramik gegen Oxidation (ISO 20509:2003)

This European Standard was approved by CEN on 10 March 2023.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Türkiye and United Kingdom.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN ISO 20509:2023 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

The text of ISO 20509:2003 has been prepared by Technical Committee ISO/TC 206 "Fine ceramics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 20509:2023 by Technical Committee CEN/TC 184 "Advanced technical ceramics" the secretariat of which is held by DIN.

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 September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.

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.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

## **Endorsement notice**

The text of ISO 20509:2003 has been approved by CEN as EN ISO 20509:2023 without any modification.

# INTERNATIONAL STANDARD

# ISO 20509

First edition  
2003-12-01

---

---

## **Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of oxidation resistance of non-oxide monolithic ceramics**

*Céramiques techniques — Détermination de la résistance à l'oxydation  
des céramiques monolithiques*



Reference number  
ISO 20509:2003(E)

© ISO 2003

**ISO 20509:2003(E)****PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Page

<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Apparatus</b> .....	<b>2</b>
<b>5</b>	<b>Test pieces</b> .....	<b>3</b>
<b>6</b>	<b>Test procedure</b> .....	<b>3</b>
<b>7</b>	<b>Calculations</b> .....	<b>5</b>
<b>8</b>	<b>Test report</b> .....	<b>7</b>
	<b>Annex A (informative) Useful information</b> .....	<b>8</b>
	<b>Annex B (informative) Interlaboratory evaluation of the test method</b> .....	<b>9</b>
	<b>Bibliography</b> .....	<b>11</b>



**ISO 20509:2003(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.

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.

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

ISO 20509 was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

# Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of oxidation resistance of non-oxide monolithic ceramics

## 1 Scope

This International Standard describes the method of test for determining the oxidation resistance of non-oxide monolithic ceramics, such as silicon nitride, Sialon<sup>1)</sup> and silicon carbide at high temperatures. This International Standard is intended to provide an assessment of the mass and dimensional changes of test pieces following oxidation at high temperature in an oxidizing atmosphere, and to assess whether oxidation has a significant effect on the subsequent strength. This test method may be used for materials development, quality control, characterization, and design data generation purposes.

## 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 3611:1978, *Micrometer callipers for external measurement*

ISO 6906:1984, *Vernier callipers reading to 0,02 mm*

ISO 7500-1:—<sup>2)</sup>, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO 14704:2000, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for flexural strength of monolithic ceramics at room temperature*

IEC 60584-1:1995, *Thermocouples — Part 1: Reference tables*

IEC 60584-2:1989, *Thermocouples — Part 2: Tolerances*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**

1) Sometimes written SiAlON is the acronym for a ceramic that contains silicon, aluminium, oxygen and nitrogen.

2) To be published. (Revision of ISO 7500-1:1999)