

STN	Skúšanie keramických surovín a základných materiálov. Priame stanovenie hmotnostného podielu nečistôt v práškovom a granulovanom karbide kremíka optickou emisnou spektrometriou s indukčne viazanou plazmou (ICP OES) s elektrotermickým odparovaním (ETV).	STN EN 15991
		72 6085

Testing of ceramic and basic materials - Direct determination of mass fractions of impurities in powders and granules of silicon carbide by inductively coupled plasma optical emission spectrometry (ICP OES) with electrothermal vapourisation (ETV)

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. 03/16

Obsahuje: EN 15991:2015

Oznámením tejto normy sa ruší
STN EN 15991 (72 6085) z júna 2011

122511

EUROPEAN STANDARD

EN 15991

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2015

ICS 81.060.10

Supersedes EN 15991:2011

English Version

Testing of ceramic and basic materials - Direct
determination of mass fractions of impurities in powders
and granules of silicon carbide by inductively coupled
plasma optical emission spectrometry (ICP OES) with
electrothermal vaporisation (ETV)

Essais sur matériaux céramiques et basiques -
Détermination directe des fractions massiques
d'impuretés dans les poudres et les granulés de
carbure de silicium par spectroscopie d'émission
optique à plasma induit par haute fréquence (ICP OES)
avec vaporisation électrothermique (ETV)

Prüfung keramischer Roh- und Werkstoffe - Direkte
Bestimmung der Massenanteile von
Spurenverunreinigungen in pulver- und kornförmigem
Siliciumcarbid mittels optischer
Emissionsspektroskopie mit induktiv gekoppeltem
Plasma (ICP OES) und elektrothermischer
Verdampfung (ETV)

This European Standard was approved by CEN on 3 October 2015.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
European foreword	3
1 Scope	4
2 Principle	4
3 Spectrometry	4
4 Apparatus	6
5 Reagents and auxiliary material	6
6 Sampling and sample preparation	7
7 Calibration	7
8 Procedure	8
9 Wavelength and working range	9
10 Calculation of the results and evaluation	9
11 Reporting of results	10
12 Precision	10
12.1 Repeatability	10
12.2 Reproducibility	10
13 Test report	10
Annex A (informative) Results of interlaboratory study	11
Annex B (informative) Wavelength and working range	16
Annex C (informative) Possible interferences and their elimination	17
Annex D (informative) Information regarding the evaluation of the uncertainty of the mean value	20
Annex E (informative) Commercial certified reference materials	21
Annex F (informative) Information regarding the validation of an analytical method based on liquid standards in the example of SiC and graphite	22
Bibliography	24

European foreword

This document (EN 15991:2015) has been prepared by Technical Committee CEN/TC 187 “Refractory products and materials”, the secretariat of which is held by BSI.

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 2016 and conflicting national standards shall be withdrawn at the latest by May 2016.

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

This document supersedes EN 15991:2011.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard defines a method for the determination of the trace element concentrations of Al, Ca, Cr, Cu, Fe, Mg, Ni, Ti, V and Zr in powdered and granular silicon carbide.

Dependent on element, wavelength, plasma conditions and weight, this test method is applicable for mass contents of the above trace contaminations from about 0,1 mg/kg to about 1 000 mg/kg, after evaluation also from 0,001 mg/kg to about 5 000 mg/kg.

NOTE 1 Generally for optical emission spectrometry using inductively coupled plasma (ICP OES) and electrothermal vaporization (ETV) there is a linear working range of up to four orders of magnitude. This range can be expanded for the respective elements by variation of the weight or by choosing lines with different sensitivity.

After adequate verification, the standard is also applicable to further metallic elements (excepting Rb and Cs) and some non-metallic contaminations (like P and S) and other allied non-metallic powdered or granular materials like carbides, nitrides, graphite, soot, coke, coal, and some other oxidic materials (see [1], [4], [5], [6], [7], [8], [9] and [10]).

NOTE 2 There is positive experience with materials like, for example, graphite, B₄C, Si₃N₄, BN and several metal oxides as well as with the determination of P and S in some of these materials.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN