SIST

SLOVENSKI STANDARD
SIST EN ISO 20565-2:2009

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Kemijska analiza kromovih ognjevzdrģnih izdelkov in kromovih surovin (alternativa rentgenski fluorescenļ ni metodi) - 2. del: Mokra kemijska analiza (ISO 20565-2:2008)

Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method) - Part 2: Wet chemical analysis (ISO 20565-2:2008)

Chemische Analyse von chromhaltigen feuerfesten Erzeugnissen und chromhaltigen Rohstoffen (Alternative zum Röntgenfluoreszenzverfahren) - Teil 2: Nasschemische Verfahren (ISO 20565-2:2008)

Analyse chimique des produits réfractaires contenant du chrome et des matériaux bruts contenant du chrome (méthode alternative a la méthode par fluorescence de rayons X) - Partie 2: Méthodes d'analyse chimique par voie humide (ISO 20565-2:2008)

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Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method) - Part 2: Wet chemical analysis (ISO 20565-2:2008)

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Foreword

This document (EN ISO 20565-2:2008) has been prepared by Technical Committee ISO/TC 33 "Refractories" in collaboration with 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of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

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The text of ISO 20565-2:2008 has been approved by CEN as a EN ISO 20565-2:2008 without any modification.

INTERNATIONAL STANDARD

ISO 20565-2

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Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method) —

Part 2: Wet chemical analysis

Analyse chimique des produits réfractaires contenant du chrome et des matières premières contenant du chrome (méthode alternative à la méthode par fluorescence de rayons X) —

Partie 2: Méthodes d'analyse chimique par voie humide

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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.

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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 20565-2 was prepared by Technical Committee ISO/TC 33, *Refractories*, in collaboration with Technical Committee CEN/TC 187, *Refractory products and materials*.

ISO 20565 consists of the following parts, under the general title *Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method)*:

— *Part 1: Apparatus, reagents, dissolution and determination of gravimetric silica*

— *Part 2: Wet chemical analysis*

— *Part 3: Flame atomic absorption spectrometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES)*

Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method) —

Part 2: Wet chemical analysis

1 Scope

This part of ISO 20565 specifies traditional ("wet process") methods for the chemical analysis of chrome-bearing refractory products and raw materials.

It is applicable to components within the ranges of determination given in Table 1.

Table 1 — Range of determination (% by mass)

Component	Range
SiO_2	0,5 to 10
Al_2O_3	2 to 30
Fe_2O_3	0,5 to 25
TiO_2	0,01 to 1
MnO	0,01 to 1
CaO	0,01 to 3
MgO	15 to 85
Na_2O	0,01 to 1
K_2O	0,01 to 1
Cr_2O_3	2 to 60
ZrO_2	0,01 to 0,5
P_2O_5	0,01 to 5
LOI	−0,5 to 5
NOTE These values are after the loss on ignition (LOI) has been taken into account.	

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 20565-1:2008, *Chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials (alternative to the X-ray fluorescence method) — Part 1: Apparatus, reagents, dissolution and determination of gravimetric silica*

ISO 26845:2008, *Chemical analysis of refractories — General requirements for wet chemical analysis, atomic absorption spectrometry (AAS) and inductively compled plasma atomic emission spectromety (ICP-AES) methods*

3 Determination of silicon(IV) oxide

3.1 General

Determine the silicon(IV) oxide content using one of the following methods.

a) Combined use of the dehydration or the coagulation and molybdenum blue methods

This method is applied to samples consisting of more than 4 % by mass of silicon(IV) oxide.

b) Molybdenum blue method

This method is applied to samples consisting of less than 10 % by mass of silicon(IV) oxide.

3.2 Combined use of the coagulation and molybdenum blue methods

3.2.1 Principle

An aliquot portion of the stock solution (S1) (see ISO 20565-1), after pH adjustment, is treated with ammonium molybdate and the silicomolybdate is reduced to yield molybdenum blue, the absorbance of which is measured.

The sum of this residual silicon(IV) oxide in solution plus the mass of silicon(IV) oxide determined in ISO 20565-1:2008, 9.2.2.3.3, gives the total silicon(IV) oxide content.

3.2.2 Procedure

This determination should be commenced with little delay after the stock solution (S1) is prepared, as prolonged standing may allow polymerization of silica to occur leading to low results.

Transfer 10 ml of stock solution (S1) (see ISO 20565-1) to a 100 ml plastic beaker, add 2 ml of hydrofluoric acid (1+9) and mix with a plastic rod. Allow to stand for 10 min and add 50 ml of boric acid solution. Add 2 ml of ammonium molybdate solution while mixing at a temperature of 25 °C and allow to stand for 10 min. Add 5 ml of L (+)-tartaric acid solution while stirring and, after 1 min, add 2 ml of L (+)-ascorbic acid solution. Transfer the solution to a 100 ml volumetric flask, dilute to the mark with water, mix and allow to stand for 60 min.

Measure the absorbance of the solution in a 10 mm cell at a wavelength of 650 nm against water as a reference.

