

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

**Part 3: Flame atomic absorption  
spectrometry (FAAS) and inductively  
coupled plasma atomic emission  
spectrometry (ICP- AES)  
(ISO 20565-3:2008)**

ICS 81.080

# National foreword

This British Standard is the UK implementation of EN ISO 20565-3:2008. Together with BS EN ISO 20565-1:2008 and BS EN ISO 20565-2:2008, it supersedes BS 1902-2.2:1974 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RPI/1, Refractory products and materials.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Chemical analysis of chrome-bearing refractory products and  
chrome-bearing raw materials (alternative to the X-ray  
fluorescence method) - Part 3: Flame atomic absorption  
spectrometry (FAAS) and inductively coupled plasma atomic  
emission spectrometry (ICP-AES) (ISO 20565-3:2008)

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 3: Méthodes par spectrométrie  
d'absorption atomique dans la flamme (FAAS) et  
spectrométrie d'émission atomique avec plasma induit par  
haute fréquence (ICP-AES) (ISO 20565-3:2008)

Chemische Analyse von chromhaltigen feuerfesten  
Erzeugnissen und chromhaltigen Rohstoffen (Alternative  
zum Röntgenfluoreszenzverfahren) - Teil 3:  
Flammenatomabsorptionsspektrometrie (FAAS) und  
Atomemissionsspektrometrie mit induktiv gekoppeltem  
Plasma (ICP-AES) (ISO 20565-3:2008)

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## **Foreword**

This document (EN ISO 20565-3:2008) 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of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

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.

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### **Endorsement notice**

The text of ISO 20565-3:2008 has been approved by CEN as a EN ISO 20565-3:2008 without any modification.

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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.

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.

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ISO 20565-3 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 3: Flame atomic absorption spectrometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES)

### 1 Scope

This part of ISO 20565 specifies flame atomic absorption spectrometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES) methods for the chemical analysis of chrome-bearing refractory products and chrome-bearing raw materials.

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

ISO 20565 gives alternatives to the X-ray fluorescence (XRF) method given in ISO 12677.

**Table 1 — Range of determination (% by mass)**

| Component                                                                           | Range       |
|-------------------------------------------------------------------------------------|-------------|
| SiO <sub>2</sub>                                                                    | 0,5 to 10   |
| Al <sub>2</sub> O <sub>3</sub>                                                      | 2 to 30     |
| Fe <sub>2</sub> O <sub>3</sub>                                                      | 0,5 to 25   |
| TiO <sub>2</sub>                                                                    | 0,01 to 1   |
| MnO                                                                                 | 0,01 to 1   |
| CaO                                                                                 | 0,01 to 3   |
| MgO                                                                                 | 15 to 85    |
| Na <sub>2</sub> O                                                                   | 0,01 to 1   |
| K <sub>2</sub> O                                                                    | 0,01 to 1   |
| Cr <sub>2</sub> O <sub>3</sub>                                                      | 2 to 60     |
| ZrO <sub>2</sub>                                                                    | 0,01 to 0,5 |
| P <sub>2</sub> O <sub>5</sub>                                                       | 0,01 to 5   |
| LOI                                                                                 | −0,5 to 5   |
| NOTE These values are after the loss on ignition (LOI) has been taken into account. |             |