

**Chemical analysis of refractory products by X-ray  
fluorescence (XRF) - Fused cast-bead method (ISO  
12677:2011)**

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ICS 81.080

Inglisekeelsed võtmesõnad: analysis, chemical analysis and testing, mas, materials, mathematical calculations, methods, methods of analysis, refractory, refractory materials, refractory products, shaped refractories, testing, verification, x- ray fluorescence spectrometry, x-ray fluorescence,

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English Version

## Chemical analysis of refractory products by X-ray fluorescence (XRF) - Fused cast-bead method (ISO 12677:2011)

Analyse chimique des matériaux réfractaires par  
fluorescence de rayons X - Méthode de la perle fondue  
(ISO 12677:2011)

Chemische Analyse von feuerfesten Erzeugnissen durch  
Röntgenfluoreszenz-Analyse (RFA) - Schmelzaufschluss-  
Verfahren (ISO 12677:2011)

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## Foreword

This document (EN ISO 12677:2011) 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of an identical text or by endorsement, at the latest by April 2012, and conflicting national standards shall be withdrawn at the latest by April 2012.

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### Endorsement notice

The text of ISO 12677:2011 has been approved by CEN as a EN ISO 12677:2011 without any modification.

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# Chemical analysis of refractory products by X-ray fluorescence (XRF) — Fused cast-bead method

## 1 Scope

This International Standard specifies a method for the chemical analysis of refractory and technical ceramic raw materials, intermediates and products, by means of the X-ray fluorescence (XRF) fused cast-bead method. Typical materials that can be analysed by this standard are given in Clause 3. This International Standard is not applicable to non-oxide materials, such as silicon carbides or nitrides, etc. The method is applicable to a wide range of materials containing a wide range of elements.

NOTE 1 The presence of significant amounts of certain elements, such as tin, copper, zinc and chromium, can present difficulties in the fusion process. In this case, the Bibliography can be referred to.

NOTE 2 Constituents at concentrations greater than 99 % (on a dried basis) are reported by difference, provided that all likely minor constituents and any loss on ignition have been determined. These figures can also be checked by direct determination.

## 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 Guide 35:2006, *Reference materials — General and statistical principles for certification*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

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

## 3 Types of material

Listed below are various types of ceramic material that have been successfully analysed by this method and for which statistical data is available (see Annex I). The list is not exhaustive but serves as a guide to those using this International Standard for the first time.

- a) High alumina > 45 %  $\text{Al}_2\text{O}_3$
- b) Alumino-silicate 7 % to 45 %  $\text{Al}_2\text{O}_3$
- c) Silica > 93 %  $\text{SiO}_2$
- d) Zircon
- e) Zirconia and zirconates
- f) Magnesia