

**Testing of ceramic raw and basic materials -
Determination of sulfur in powders and granules of non-oxidic ceramic raw and basic materials - Part 1: Infrared measurement methods (ISO 14720-1:2013)**

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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 14720-1:2013 sisaldab Euroopa standardi EN ISO 14720-1:2013 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 14720-1:2013 consists of the English text of the European standard EN ISO 14720-1:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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English Version

Testing of ceramic raw and basic materials - Determination of sulfur in powders and granules of non-oxidic ceramic raw and basic materials - Part 1: Infrared measurement methods (ISO 14720-1:2013)

Essais des matières premières pour produits réfractaires - Dosage du soufre dans les matières premières non oxydantes sous forme de poudre et de granulés - Partie 1: Méthodes d'essai par infrarouge (ISO 14720-1:2013)

Prüfung keramischer Roh- und Werkstoffe - Bestimmung des Schwefelgehaltes in pulver- und kornförmigen nichtoxidischen keramischen Roh- und Werkstoffen - Teil 1: Infrarotmessverfahren (ISO 14720-1:2013)

This European Standard was approved by CEN on 16 February 2013.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 14720-1:2013) 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of an identical text or by endorsement, at the latest by September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

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Endorsement notice

The text of ISO 14720-1:2013 has been approved by CEN as EN ISO 14720-1:2013 without any modification.

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Testing of ceramic raw and basic materials — Determination of sulfur in powders and granules of non-oxidic ceramic raw and basic materials —

Part 1: Infrared measurement methods

1 Scope

This part of ISO 14720 defines a method for the determination of sulfur in powdered and granular non-oxidic ceramic raw materials and materials, such as silicon carbides, silicon nitrides, graphites, carbon blacks, cokes, carbon powders. If proved by the recovery rate, this method can also be applied for other non-metallic powdered and granular materials, e.g. silicon dioxide.

This part of ISO 14720 is applicable for materials with mass fractions of sulfur from 0,005 % to 2 %.

This part of ISO 14720 can also be applied for materials with higher mass fractions of sulfur after verification of the particular case.

2 Principle

The sample and added combustion accelerators (mostly tungsten- or iron-granules) are heated in an inductive furnace under oxygen atmosphere. The high-frequency field of the furnace couples with electrically conductive components of sample and combustion accelerators. The sample is heated to temperatures above 1 800 °C and the total sulfur content of the sample is released as sulfur dioxide. The reaction gas is transferred to the infrared absorption cell of the analyser. The molecular absorption of sulfur dioxide is measured by using a narrow-band optical filter which is translucent for the wavelength of the characteristic infrared absorption of sulfur dioxide. The mass fraction of sulfur dioxide in the reaction gas is proportional to peak-height and peak-area, respectively, of the transient absorption signal. The mass fraction of sulfur in the sample is calculated by using a calibration function established by suitable calibration standards measured under comparable conditions.

3 Apparatus

3.1 Device with induction furnace or alternatively resistance furnace and infrared cell.

NOTE The correctness of the analysis result can be proved by using matrix-analogous reference materials or by comparing with an independent alternative test method. If determining mass fractions below 100 mg/kg, it has to be considered that some analytical devices may deliver incorrect results.

3.2 Analytical balance, capable of reading to the nearest 0,01 mg.

3.3 Ceramic crucible, e.g. mullite or alumina.

3.4 Crucible lid with hole, e.g. mullite or alumina.