



International
Standard

ISO 14720-2

**Testing of ceramic materials —
Determination of sulfur in non-
oxidic ceramic raw materials and
ceramic materials —**

Part 2:

**Inductively coupled plasma optical
emission spectrometry (ICP-OES)
or ion chromatography (IC) after
burning in the oxygen flow**

*Analyse des matériaux céramiques — Dosage du soufre dans les
produits et les matières premières céramiques non oxydes —*

*Partie 2: Spectrométrie d'émission optique par plasma à
couplage inductif (ICP-OES) ou chromatographie ionique (IC)
après combustion dans le courant d'oxygène*

**Second edition
2026-03**

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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 33, *Refractories*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 187, *Refractory products and materials*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 14720-2:2013), which has been technically revised.

The main changes are as follows:

- title of this document revised to better describe its field of application;
- [Clause 1](#) adapted to the new title;
- [subclause 9.3](#) provides additional information on suitable sulfur emission lines;
- in [9.3](#), [9.4](#), [11.1](#) and [11.2](#), NOTES were transferred into normative paragraphs;
- [subclause 11.1](#) provides additional information on blank measurement;
- in [11.2](#), the error in the analysis process regarding the extraction of the residue after combustion has been corrected;
- in [Clause 12](#), symbols for variables have been revised according to ISO/IEC requirements.

A list of all parts in the ISO 14720 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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

Part 2:

Inductively coupled plasma optical emission spectrometry (ICP-OES) or ion chromatography (IC) after burning in the oxygen flow

1 Scope

This document specifies a method for the determination of sulfur in non-oxidic ceramic raw materials and ceramic materials, which are completely oxidized at a higher temperature in an oxygen atmosphere, e.g. carbon and graphite materials.

For materials which are not completely oxidizable under these conditions, it is possible to determine sulfur that can be released under these conditions, e.g. the adherent sulfur.

This document is applicable for materials with mass fractions of sulfur $\leq 10\%$ and mass fractions of ash $< 20\%$. The defined method is limited for materials with mass fractions of barium $< 10\text{ mg/kg}$, because the sulfur bonded in barium sulfate is not detectable with this method.

For the lower detection limit of this method, a mass fraction of sulfur of $0,5\text{ mg/kg}$ in the case of inductively coupled plasma optical emission spectrometry (ICP-OES) and 5 mg/kg in the case of ion chromatography (IC) can be considered as a practical value.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 10304-1, *Water quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

ISO 11885, *Water quality — Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

sulfur content

mass fraction of inorganic and organic bound sulfur