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Acid-grade and ceramic-grade fluorspar — Determination of barium sulfate content — Gravimetric method

*Spaths fluor pour la fabrication de l'acide fluorhydrique et spaths fluor utilisables dans
l'industrie céramique — Dosage du sulfate de baryum — Méthode gravimétrique*

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Reference number
ISO 5437:1988 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5437 was prepared by Technical Committee ISO/TC 175, *Fluorspar*.

Acid-grade and ceramic-grade fluorspar — Determination of barium sulfate content — Gravimetric method

1 Scope

This International Standard specifies a gravimetric method for the determination of the barium sulfate content of acid-grade and ceramic-grade fluorspar.

The method is applicable to products having barium sulfate contents equal to or greater than 0,1 % (m/m).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 565 : 1983, *Test sieves — Woven metal wire cloth, perforated plate and electroformed sheet — Nominal sizes of openings*.

ISO 4282 : 1977, *Acid-grade fluorspar — Determination of loss in mass at 105 °C*

3 Principle

Evaporation to dryness of a test portion in the presence of hydrofluoric acid and concentrated sulfuric acid. Extraction of the soluble salts from the residue with a mixture of hydrochloric acid and sulfuric acid. Filtration, drying and weighing of the residual barium sulfate.

4 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

4.1 Hydrofluoric acid, ρ approximately 1,13 g/ml, about 40 g/l solution.

4.2 Sulfuric acid, ρ approximately 1,84 g/ml, about 96 % (m/m) solution.

4.3 Acid mixture.

Add 100 ml of hydrochloric acid, ρ approximately 1,19 g/ml, about 38 % (m/m) solution, to 500 ml of water. Then carefully add 20 ml of the sulfuric acid (4.2), mix and dilute to 1 000 ml.

4.4 Ammonium acetate, 200 g/l solution.

5 Apparatus

Ordinary laboratory apparatus and

5.1 Platinum dish, of diameter about 90 mm and capacity about 200 ml.

5.2 Porcelain filter crucible, porosity grade P4 (pore size index 1,6 μm to 4 μm).

5.3 Filter paper, Whatman No. 42 or equivalent.¹⁾

5.4 Platinum crucible.

5.5 Electric oven, capable of being controlled at 105 °C $\pm$ 2 °C.

5.6 Electric furnace, capable of being controlled at 800 °C $\pm$ 25 °C.

6 Test sample

Use the residue from the determination of the loss in mass at 105 °C (see ISO 4282) to prepare the test sample.

1) Whatman No. 42 is an example of a suitable filter paper available commercially. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of this filter paper.