
INTERNATIONAL STANDARD



2369

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

**Aluminium fluoride for industrial use —
Determination of silica content — Spectrophotometric
method using the reduced silicomolybdic complex**

First edition — 1972-12-15

UDC 661.862.362 : 546.28 : 543.422

Ref. No. ISO 2369-1972 (E)

Descriptors : aluminium halides, chemical analysis, determination of content, spectrophotometry, silicon dioxide.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

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.

International Standard ISO 2369 was drawn up by Technical Committee ISO/TC 47, *Chemistry*.

It was approved in December 1971 by the Member Bodies of the following countries :

Belgium	Israel	South Africa, Rep. of
Egypt, Arab Rep. of	Italy	Spain
France	Netherlands	Switzerland
Germany	New Zealand	Thailand
Hungary	Poland	United Kingdom
India	Portugal	U.S.S.R.
Ireland	Romania	Yugoslavia

The Member Body of the following country expressed disapproval of the document on technical grounds :

Canada

Aluminium fluoride for industrial use – Determination of silica content – Spectrophotometric method using the reduced silicomolybdic complex

1 SCOPE

This International Standard specifies a spectrophotometric method, using the reduced silicomolybdic complex, for determining the silica content of aluminium fluoride for industrial use.

2 FIELD OF APPLICATION

The method can be applied to the determination of the silica content of aluminium fluoride for industrial use, provided that the P_2O_5 content does not exceed 0,02 %.

3 REFERENCE

ISO 2925, *Aluminium fluoride for industrial use – Preparation and storage of test samples.*¹⁾

4 PRINCIPLE

Alkaline fusion of a test portion by means of a mixture of sodium carbonate and boric acid. Solution of the fused mass in excess nitric acid so that the pH of the final solution is between 0,3 and 0,5 after being diluted to 250 ml.

Formation, in a suitable aliquot portion, of the (yellow) oxidized silicomolybdic complex under clearly defined conditions of acidity, concentration of reagents, temperature and time.

Selective reduction of the complex in a high acidity sulphuric acid medium and in the presence of tartaric acid.

Spectrophotometric measurement of the reduced complex at a wavelength of about 815 nm.

5 REAGENTS

Redistilled water shall be used in the test.

5.1 Sodium carbonate, anhydrous.

1) At present at the stage of draft.

2) Polytetrafluorethylene (PTFE).

3) For example PTFE, polypropylene or polyethylene may be used.

5.2 Boric acid (H_3BO_3).

5.3 Nitric acid, approximately 8 N solution.

Dilute 540 ml of nitric acid solution, ρ 1,40 g/ml, 68 % (m/m) approximately, with water to 1 000 ml and mix.

5.4 Sodium molybdate, 195 g/l (0,8 M approximately) solution.

Dissolve, in a PTFE²⁾ beaker, 19,5 g of sodium molybdate dihydrate ($Na_2MoO_4 \cdot 2H_2O$) in hot water and, after cooling, dilute to 100 ml and mix.

Transfer the solution to a plastics³⁾ bottle and, if necessary, filter before use.

5.5 Tartaric acid, 100 g/l solution.

Dissolve 10 g of tartaric acid in water, dilute to 100 ml and mix.

5.6 Sulphuric acid, approximately 16 N solution.

Carefully add 450 ml of sulphuric acid, ρ 1,84 g/ml, approximately 96 % (m/m) solution, to about 500 ml of water.

Cool, dilute to 1 000 ml and mix.

5.7 Reducing solution

Either of the following solutions may be used :

5.7.1 1-amino-2-naphthol-4-sulphonic acid, 1,5 g/l solution.

a) Dissolve 7 g of anhydrous sodium sulphite in 50 ml of water. Add 1,5 g of 1-amino-2-naphthol-4-sulphonic acid.

b) Dissolve 90 g of sodium metabisulphite ($Na_2S_2O_5$) in 900 ml of water.

Mix the two solutions a) and b) and dilute to 1 000 ml.

Filter if necessary.

Store in an amber-coloured plastics bottle, in a cool place.