
INTERNATIONAL STANDARD



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Aqueous hydrofluoric acid for industrial use — Sampling and methods of test

Acide fluorhydrique en solution à usage industriel — Échantillonnage et méthodes d'essai

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Sample Document

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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 3139 was drawn up by Technical Committee ISO/TC 47, *Chemistry*. This second edition results from the incorporation of Addendum 1 in the first edition of the Standard.

This Addendum (clause 5 of the present document) was circulated to the Member Bodies in December 1974, and has been approved by the Member Bodies of the following countries :

Austria	Hungary	Spain
Belgium	India	Switzerland
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No Member Body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 3139-1974) which had been approved by the Member Bodies of the following countries :

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

No Member Body had expressed disapproval of the document.

Aqueous hydrofluoric acid for industrial use – Sampling and methods of test

WARNING – Aqueous hydrofluoric acid is a highly corrosive liquid which attacks glass; the vapour is irritant and toxic. Its action on the skin and eyes is strongly corrosive, producing severe and painful burns which may not be immediately evident and which respond slowly to treatment.

Samples should be handled only inside a well-ventilated fume cupboard. Rubber gloves, boots and gown of a suitable size to give adequate protection to the individual, and full head and face protection must be worn when handling the material.

In the event of contact or suspected contact, flood with water and seek immediate medical attention. The manufacturers' literature should be consulted for further information.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the procedure for sampling aqueous hydrofluoric acid for industrial use, together with titrimetric methods for determination of the total acidity, the hexafluorosilicic acid content and the non-volatile acids content, and a method for calculating the hydrogen fluoride content.

2 SAMPLING

For this dangerous material, a test sample shall be prepared by dilution, if required, of a bulk sample as specified in 2.1.

2.1 Test sample

2.1.1 Reagent

Distilled water, or water of equivalent purity, and ice obtained from such water.

2.1.2 Apparatus

Ordinary laboratory apparatus and

2.1.2.1 Screw-capped polyolefin sample bottle of capacity 150 ml, graduated at 100 ml.

2.1.3 Procedure

Weigh, to the nearest 0,01 g, a mass of a mixture of the ice and water (2.1.1) depending on the concentration of hydrofluoric acid in the bulk sample, as shown in the following table, into the tared sample bottle (2.1.2.1).

TABLE – Mass of mixture of ice and water for preparation of test sample

Concentration of bulk sample	Mass of mixture of ice and water
HF % (<i>m/m</i>)	g
40 to 50	0
50 to 60	15
60 to 70	35
> 70	50

Carefully fill the sample bottle (2.1.2.1) to the mark with the bulk sample, cool if necessary and reweigh to the nearest 0,01 g.

3 DETERMINATION OF TOTAL ACIDITY AND HEXAFLUROSILICIC ACID CONTENT – TITRIMETRIC METHOD

3.1 Scope

This clause specifies a titrimetric method for the determination of the total acidity and the hexafluorosilicic acid content of 40 to 85 % (*m/m*) commercial hydrofluoric acid for industrial use.

3.2 Field of application

This method is applicable to the determination of hexafluorosilicic acid contents of between 0,2 and 10 % (*m/m*), expressed as hexafluorosilicic acid (H₂SiF₆).