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INTERNATIONAL STANDARD



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**Anhydrous hydrogen fluoride for industrial use —  
Determination of sulphur dioxide content — Iodometric  
method**

*Fluorure d'hydrogène anhydre à usage industriel — Dosage du dioxyde de soufre — Méthode iodométrique*

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**Descriptors** : chemical compounds, hydrogen fluoride, chemical analysis, sulphur dioxide, iodometric analysis.

## 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 3702 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the Member Bodies in January 1975.

It has been approved by the Member Bodies of the following countries :

Austria	Israel	Switzerland
Belgium	Italy	Turkey
Brazil	Poland	United Kingdom
France	Portugal	U.S.S.R.
Germany	Romania	Yugoslavia
Hungary	South Africa, Rep. of	
India	Spain	

No Member Body expressed disapproval of the document.

# Anhydrous hydrogen fluoride for industrial use – Determination of sulphur dioxide content – Iodometric method

**WARNING** – Anhydrous hydrogen fluoride is a highly corrosive liquid which boils at 19,5 °C. It attacks glass, has a great affinity for water and 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

This International Standard specifies an iodometric method for the determination of the sulphur dioxide content of anhydrous hydrogen fluoride for industrial use.

## 2 FIELD OF APPLICATION

The method is applicable to products having sulphur dioxide (SO<sub>2</sub>) contents between 0,002 and 0,20 % (m/m).

## 3 REFERENCE

ISO 3137, *Anhydrous hydrogen fluoride for industrial use – Sampling*.

## 4 SAMPLING

For the preparation of the laboratory and test samples, use the methods specified in ISO 3137.

## 5 PRINCIPLE

Addition of a measured volume of iodine solution to a test portion. Back-titration of the excess iodine using a standard volumetric sodium thiosulphate solution, and calculation of the sulphur dioxide content from the amount of iodine used.

## 6 REAGENTS

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

### 6.1 Iodine, approximately 0,1 N solution.

Dissolve 20 g of potassium iodide in approximately 30 ml of water. Add 12,7 g of iodine and stir until dissolved. Transfer to a 1 000 ml one-mark volumetric flask, dilute to the mark and mix.

Renew this solution at least every month.

### 6.2 Iodine, approximately 0,01 N solution.

Place 100 ml of the iodine solution (6.1) in a 1 000 ml one-mark volumetric flask, dilute to the mark and mix.

Prepare this solution at the time of use.

### 6.3 Sodium thiosulphate, 0,01 N standard volumetric solution.

### 6.4 Starch indicator, 5 g/l solution.

Disperse 0,5 g of soluble starch in a few millilitres of cold water and add the dispersion to 100 ml of boiling water. Stir for 1 min.

Prepare a fresh solution daily.

## 7 APPARATUS

Ordinary laboratory apparatus and

### 7.1 Polyethylene weighing bottle.

### 7.2 Polyethylene beaker, capacity 500 ml.

### 7.3 Stirrer, consisting of a polyethylene rod.