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# INTERNATIONAL STANDARD



# 3393

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

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## Cryolite, natural and artificial, and aluminium fluoride for industrial use – Determination of moisture content – Gravimetric method

*Cryolithe, naturelle et artificielle, et fluorure d'aluminium à usage industriel – Détermination de l'humidité – Méthode gravimétrique*

**(standards.iteh.ai)**

First edition – 1976-08-01

[ISO 3393:1976](#)

<https://standards.iteh.ai/catalog/standards/sist/a5ee4f45-a605-4cad-8372-876c4304edf8/iso-3393-1976>



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UDC 661.862.36 : 543.712

Ref. No. ISO 3393-1976 (E)

**Descriptors** : chemical compounds, cryolite, aluminium fluorides, chemical analysis, determination of content, humidity.

## 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 3393 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and was circulated to the Member Bodies in August 1974.

**ITeH STANDARD PREVIEW**  
(standards.iteh.ai)

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

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

No Member Body expressed disapproval of the document.

# Cryolite, natural and artificial, and aluminium fluoride for industrial use – Determination of moisture content – Gravimetric method

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a gravimetric method for determination of the moisture content of cryolite, natural and artificial, and aluminium fluoride for industrial use.

## 2 REFERENCES

ISO 1619, *Cryolite, natural and artificial – Preparation and storage of test samples.*

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

## 3 PRINCIPLE

Drying of a test portion for 2 h at 110 °C and determination of the loss in mass.

## 4 APPARATUS

Ordinary laboratory apparatus, and

**4.1 Weighing bottle**, squat form, of diameter about 45 mm.

**4.2 Electric oven**, capable of being controlled at 110 ± 5 °C.

## 5 PROCEDURE

### 5.1 Test portion

Weigh, to the nearest 0,001 g, about 20 g of the crude test sample (see 3.2 of ISO 1619 or 2.2 of ISO 2925) in the weighing bottle (4.1), previously dried for 2 h in the oven (4.2) controlled at 110 ± 5 °C, cooled in a desiccator and weighed, with its lid, to the nearest 0,001 g.

### 5.2 Determination

Regulate the temperature of the oven (4.2) at 110 ± 5 °C. Insert the weighing bottle containing the test portion (5.1), with its lid resting on top without closing the bottle, and a watch-glass of diameter slightly greater than that of the weighing bottle. After drying for 2 h, replace the lid by the watch-glass and transfer all to a desiccator. After cooling, close the weighing bottle with its lid and weigh to the nearest 0,001 g.

## 6 EXPRESSION OF RESULTS

The moisture content is given, as a percentage by mass, by the formula

$$\frac{m_2 - m_1}{m_0} \times 100$$

where

$m_0$  is the mass, in grams, of the test portion (5.1);

$m_1$  is the mass, in grams, of the weighing bottle, with its lid, containing the test portion after drying;

$m_2$  is the mass, in grams, of the weighing bottle, with its lid, containing the test portion before drying.

## 7 TEST REPORT

The test report shall include the following particulars :

- the reference of the method used;
- the results and the method of expression used;
- any unusual features noted during the determination;
- any operation not included in this International Standard or in the International Standards to which reference is made, or regarded as optional.

ANNEX

ISO PUBLICATIONS RELATING TO CRYOLITE, NATURAL AND ARTIFICIAL,  
AND ALUMINIUM FLUORIDE FOR INDUSTRIAL USE

**CRYOLITE, NATURAL AND ARTIFICIAL**

- ISO 1619 – Preparation and storage of test samples.
- ISO 1620 – Determination of silica content – Spectrophotometric method using the reduced molybdosilicate.
- ISO 1693 – Determination of fluorine content – Modified Willard-Winter method.
- ISO 1694 – Determination of iron content – 1,10-Phenanthroline photometric method.
- ISO 2366 – Determination of sodium content – Flame emission and atomic absorption spectrophotometric methods.
- ISO 2367 – Determination of aluminium content – 8-Hydroxy-quinoline gravimetric method.
- ISO 2830 – Determination of aluminium content – Atomic absorption method.
- ISO 3391 – Determination of calcium content – Flame atomic absorption method.
- ISO 3392 – Determination of water content – Electrometric method.
- ISO 3393 – Determination of moisture content – Gravimetric method.
- ISO 4277 – Evaluation of free fluorides content – Conventional titrimetric method.
- ISO 4280 – Determination of sulphates content – Barium sulphate gravimetric method.

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**ALUMINIUM FLUORIDE FOR INDUSTRIAL USE**

- ISO 2362 – Determination of fluorine content – Modified Willard-Winter method
- ISO 2368 – Determination of iron content – 1,10-Phenanthroline photometric method.
- ISO 2369 – Determination of silica content – Spectrophotometric method using the reduced silicomolybdic complex.
- ISO 2925 – Preparation and storage of test sample.
- ISO 3392 – Determination of water content – Electrometric method.
- ISO 3393 – Determination of moisture content – Gravimetric method.
- ISO 4279 – Determination of sodium content – Flame emission spectrophotometric method.
- ISO 4280 – Determination of sulphates content – Barium sulphate gravimetric method.