INTERNATIONAL STANDARD 910

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

Sulphuric acid and oleum for industrial use — Determination of total acidity, and calculation of free sulphur trioxide content of oleum — Titrimetric method

Acide sulfurique et oléums à usage industriel — Détermination de l'acidité totale et calcul de la teneur en trioxyde de soufre libre des oléums — Méthode titrimétrique

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Descriptors : sulphuric acid, chemical analysis, determination of content, acidity, volumetric analysis.

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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.

Prior to 1972, the results of the work of the technical committees were published as ISO Recommendations; these documents are in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47, *Chemistry*, has reviewed ISO Recommendation R 910-1968 and found it technically suitable for transformation. International Standard ISO 910 therefore replaces ISO Recommendation R 910-1968 to which it is technically identical.

ISO Recommendation R 910 had been approved by the member bodies of the following countries :

Austria	Hungary	Portugal
Belgium	India	Romania
Brazil	Iran	South Africa, Rep. of
Chile	Ireland	Spain
Cuba	Italy	Switzerland
Czechoslovakia	Japan	Thailand
Egypt, Arab Rep. of	Netherlands	Turkey
France	New Zealand	U.S.S.R.
Germany	Poland	Yugoslavia

The member body of the following country had expressed disapproval of the Recommendation on technical grounds :

United Kingdom

The member body of the United Kingdom also disapproved the transformation of the Recommendation into an International Standard.

Printed in Switzerland

Sulphuric acid and oleum for industrial use — Determination of total acidity, and calculation of free sulphur trioxide content of oleum — Titrimetric method

1 SCOPE

This International Standard specifies a titrimetric method for the determination of the total acidity of sulphuric acid for industrial use, conventionally expressed as H_2SO_4, and a method for the calculation of the free sulphur trioxide content of oleum.

2 FIELD OF APPLICATION

Two cases are considered :

a) H_2SO_4 contents equal to or lower than 98 % (*m/m*);

b) H_2SO_4 contents higher than 98 % (*m/m*).

3 PRINCIPLE

Oxidation of a test portion with hydrogen peroxide and titration of the total acidity with a standard volumetric sodium hydroxide solution, in the presence of methyl red as indicator.

4 REAGENTS

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

4.1 Hydrogen peroxide, 60 g/l solution, neutral to methyl red.

4.2 Sodium hydroxide, 1 N standard volumetric solution.

4.3 Methyl red, 1 g/l solution in 95 % (*V/V*) ethanol.

5 APPARATUS

Ordinary laboratory apparatus and

5.1 Flask, capacity approximately 500 ml, with neck of diameter about 30 mm, with ground glass stopper.

5.2 Spherical glass ampoule, of suitable shape and capacity, for example about 20 mm in diameter, having one capillary end of length about 50 mm (see the example shown in the figure).

5.3 Burette, graduated in 0,05 ml, complying with ISO 385.

5.4 Conical flask, capacity 500 ml, with ground glass stopper.

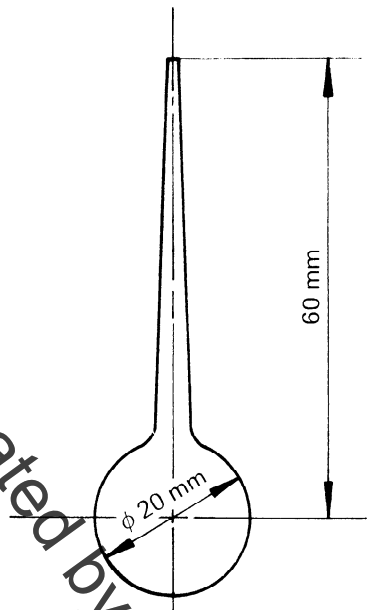

FIGURE — **Spherical glass ampoule**

6 PROCEDURE

6.1 H_2SO_4 contents equal to or lower than 98 % (*m/m*)

6.1.1 *Test portion*

In a weighing bottle, previously tared to the nearest 0,000 1 g, weigh, to the nearest 0,000 1 g, approximately 2 g of the test sample.