INTERNATIONAL STANDARD ISO 2225

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

Formaldehyde solutions for industrial use — Determination of acidity

First edition — 1972-11-15

UDC 661.727.1 : 542.61 : 543.241

Ref. No. ISO 2225-1972 (E)

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

Price based on 2 pages

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 2225 was drawn up by Technical Committee ISO/TC 47, *Chemistry*.

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

Austria	Ireland	Sweden
Belgium	Israel	Switzerland
Czechoslovakia	Italy	Turkey
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	Romania	U.S.S.R.
Hungary	South Africa, Rep. of	

No Member Body expressed disapproval of the document.

Printed in Switzerland

Formaldehyde solutions for industrial use — Determination of acidity

WARNING

Formaldehyde is toxic. It is therefore necessary to avoid inhaling its vapour during sampling and testing.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a volumetric method for the determination of acidity of formaldehyde solutions for industrial use.

2 PRINCIPLE

Titration of the acidity with a standard volumetric solution of sodium hydroxide, using bromothymol blue as indicator.

3 REAGENTS

Distilled water, or water of equivalent purity, freshly boiled and cooled, shall be used in the test.

3.1 Sodium hydroxide, 0,1 N standard volumetric solution.

3.2 Bromothymol blue, 0,4 g/l solution.

Triturate 0,4 g of powdered bromothymol blue in an agate mortar with 6,4 ml of the sodium hydroxide solution (3.1) and dilute to 1 000 ml with water.

4 APPARATUS

Ordinary laboratory apparatus.

5 SAMPLING

Follow the principles given in ISO ...[1].

Attention is drawn to the following recommendation. Place the laboratory sample, representative of the material taken from the bulk, in a clean, dry, and air-tight glass bottle, fitted with a ground glass stopper, of such a size that it is nearly filled by the sample.

If it is necessary to seal this bottle care shall be taken to avoid the risk of contamination.

Owing to polymerization, paraformaldehyde will tend to be deposited on standing and this will occur more rapidly if the temperature is allowed to fall below 25 °C. Accordingly the material shall be sampled as soon as possible after receipt.

6 PROCEDURE

6.1 Test portion

Place 100 ± 1 g of the laboratory sample in a 500 ml conical flask.

6.2 Determination

To the flask containing the test portion (6.1) add 4 drops (approximately 0,2 ml) of the bromothymol blue solution (3.2) and titrate with the sodium hydroxide standard volumetric solution (3.1) to the appearance of a green colour.

NOTE – Water previously neutralized to bromothymol blue may be added before titration if desired in order to reduce the smell of formaldehyde in the laboratory.

7 EXPRESSION OF RESULTS

Acidity, expressed as formic acid (HCOOH), is given, as a percentage by mass, by the formula

$$\frac{0{,}004\,6 \times V \times 100}{m} = \frac{0{,}46\,V}{m}$$

where

V is the volume, in millilitres, of the standard volumetric sodium hydroxide solution (3.1) used for the titration;

m is the mass, in grams, of the test portion.

1) Sampling from the consignment of the product will form the subject of a future International Standard.

8 TEST REPORT

The test report shall include the following particulars :

a) the reference of the method used;

b) the results and the method of expression used;

c) any unusual features noted during the determination;

d) any operation not included in this International Standard, or regarded as optional.