INTERNATIONAL STANDARD 2512

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Furfural for industrial use — Determination of total carbonyl compounds — Volumetric method

Furfural à usage industriel — Dosage des composés carbonylés totaux — Méthode volumétrique

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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 2512 was drawn up by Technical Committee ISO/TC 47, *Chemistry*, and circulated to the Member Bodies in August 1971.

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

Austria	India	South Africa, Rep. of
Belgium	Ireland	Spain
Egypt, Arab Rep. of	Israel	Switzerland
France	Netherlands	Thailand
Germany	Poland	United Kingdom
Hungary	Portugal	U.S.S.R.

No Member Body expressed disapproval of the document.

Furfural for industrial use — Determination of total carbonyl compounds — Volumetric method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a volumetric method for the determination of the total content of carbonyl compounds in furfural (OCH = CHCH = CCHO) for industrial use.

2 PRINCIPLE

Reaction between hydroxylammonium chloride and carbonyl groups, followed by determination of the hydrochloric acid liberated by titration with standard volumetric sodium hydroxide solution in the presence of bromophenol blue as indicator.

3 REAGENTS

Distilled water, or water of equivalent purity, shall be used in the test.

3.1 Hydroxylammonium chloride, approximately N solution.

3.2 Sodium hydroxide, N standard volumetric solution.

3.3 Bromophenol blue, 0,2 g/l solution.

4 APPARATUS

Ordinary laboratory apparatus.

5 PROCEDURE

5.1 Test portion

Weigh, to the nearest 0,01 g, 1,5 to 2 g of the laboratory sample.

5.2 Determination

Into two 250 ml conical flasks fitted with ground glass stoppers, place 50 ml of the hydroxylammonium chloride solution (3.1) and 1 ml of the bromophenol blue solution (3.3). Neutralize with the sodium hydroxide solution (3.2) to the blue-green colour of the indicator.

Transfer the test portion (6.1) rapidly to one of the flasks, shake to ensure that the furfural vapours react, open the flask and then close it again.

Neutralize the liberated acid with the sodium hydroxide solution (3.2) to the same blue-green colour as that obtained without the test portion.

6 EXPRESSION OF RESULTS

Total content of carbonyl compounds, expressed as a percentage by mass of furfural, is given by the formula

$$\frac{9{,}608 \times V}{m}$$

where

V is the volume, in millilitres, of the standard volumetric sodium hydroxide solution used for the flask containing the test portion;

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

7 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.

ANNEX

This document forms part of the following series on methods of test for furfural for industrial use :

ISO 2511 – *List of methods of tests*

ISO 2512 – *Determination of total carbonyl compounds – Volumetric method*

ISO 2888 – *Determination of acidity to phenolphthalein – Volumetric method.*