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INTERNATIONAL STANDARD 2513

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

Acetaldehyde for industrial use — Determination of density at 15 °C

Acétaldéhyde à usage industriel — Détermination de la masse volumique à 15 °C

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Descriptors : aldehydes, acetaldehyde, tests, physical tests, density (mass/volume), measurement.

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 2513 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	Israel	Sweden
Belgium	Netherlands	Switzerland
Egypt, Arab. Rep. of	New Zealand	Thailand
France	Poland	United Kingdom
Germany	Portugal	U.S.A.
Hungary	Romania	U.S.S.R.
India	South Africa, Rep. of	
Ireland	Spain	

No Member Body expressed disapproval of the document.

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INTERNATIONAL STANDARD ISO 2513-1974 (E)

Acetaldehyde for industrial use — Determination of density at 15 °C

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the density at 15 °C of acetaldehyde (CH_3CHO) for industrial use.

NOTE — The low boiling point (20,2 °C) of acetaldehyde makes determination of density at 20 °C difficult and determination at 15 °C is therefore specified.

2 REFERENCE

ISO/R 758, *Method for the determination of the density of liquids at 20 °C.*

3 SAMPLING

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

Liquid acetaldehyde (b.p. 20,2 °C) exerts a vapour pressure of approximately 1,5 bar[2)] at 30 °C and samples must be taken with care in clean stainless steel flasks purged with nitrogen, fitted with a screw cap and designed to withstand the internal pressure generated at foreseeable storage temperatures. Samples shall only be drawn from containers at temperatures below 20 °C unless equipment designed for transferring liquids under pressure is employed, and the container is fitted with a valve for connection to the sample receiver.

4 PROCEDURE

Use the method specified in ISO/R 758, subject to the following modifications appropriate for acetaldehyde.

4.1 Water bath (See 4.2 in ISO/R 758)

This shall be maintained at 15 ± 0,1 °C.

4.2 Procedure (See clause 5 in ISO/R 758)

The determination shall be carried out at 15 ± 0,1 °C.

The density bottle shall be purged with nitrogen before filling with the test sample.

5 EXPRESSION OF RESULTS

Calculate the density at 15 °C of the sample from the formula :

$$\frac{m_1 + A}{m_2 + A} \times \rho$$

where

m_1 is the apparent mass, in grams, of sample required to fill the bottle at 15 °C;

m_2 is the apparent mass, in grams, of water required to fill the bottle at 15 °C;

ρ is the density of water at 15 °C = 0,999 1 g/ml;

A is the buoyancy correction = $\rho_a \times m_2$

ρ_a being the density of air
= approximately 0,001 2 g/ml.

Express the result to three places of decimals.

6 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 the document to which reference is made, or regarded as optional.

1) In preparation.

2) 1 bar = 10^5 Pa.

ANNEX

This document forms part of the following series on methods of test for acetaldehyde for industrial use.

ISO 2513 – *Determination of density at 15 °C.*

ISO 2514 – *Determination of water content – Karl Fischer method.*

ISO 2885 – *Determination of total carbonyl compounds – Volumetric method.*

ISO 2886 – *Determination of iron content – 2,2'bipyridyl photometric method.*