EAST AFRICAN COMMUNITY

EDICT OF GOVERNMENT

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EAS 213 (2001) (English): Liquid chemical products for industrial use Determination of absolute density at 20 °C

ISO INSIDE

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ICS 71.040.40

EAST AFRICAN STANDARD

Liquid chemical products for industrial use — Determination of absolute density at 20 °C

EAST AFRICAN COMMUNITY

First Edition 2001

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Partner States in the Community through their National Bureaux of Standards, have established an East African Standards Committee.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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INTERNATIONAL STANDARD 758

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

Liquid chemical products for industrial use — Determination of density at 20 °C

Produits chimiques liquides à usage industriel — Détermination de la masse volumique à 20 °C

First edition — 1976-11-15

UDC 531.756.1 : 542.3

Ref. No. ISO 758-1976 (E)

Descriptors : chemical compounds, liquids, physical tests, density (mass/volume), measurement, pyknometric analysis.

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.

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 758-1968 and found it technically suitable for transformation. International Standard ISO 758 therefore replaces ISO Recommendation R 758-1968, to which it is technically identical.

ISO Recommendation R 758 has been approved by the member bodies of the following countries :

Australia	Germany	Poland
Austria	Hungary	Portugal
Belgium	India	Romania
Chile	Israel	Spain
Colombia	Italy	United Kingdom
Czechoslovakia	Japan	U.S.S.R.
Egypt, Arab Rep. of	Korea, Rep. of	Yugoslavia
France	Netherlands	

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

U.S.A.

The member body of the following country disapproved the transformation of the Recommendation into an International Standard :

Netherlands

Printed in Switzerland

Liquid chemical products for industrial use — Determination of density at 20 °C

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a reference method for the determination of the density, at 20 °C, of liquid chemical products for industrial use.

2 REFERENCE

ISO 3507, *Pyknometers.*

3 DEFINITION

density at 20 °C of a material : The mass of unit volume of the material at 20 °C. It is expressed in grams per millilitre.

4 PRINCIPLE

Determination of the mass at 20 °C of a volume of the material contained in a pyknometer flask, and determination of the volume of the latter by determining the mass of a corresponding volume of water at 20 °C. Calculation of the density by dividing the mass of the material by the capacity of the flask.

5 APPARATUS

Ordinary laboratory apparatus, and

5.1 Pyknometer flask, type 3 (Gay-Lussac) (see ISO 3507), made of glass and of a size and type suitable for use with the material under test, preferably 25 or 50 ml (see the figure).

5.2 Water bath, capable of being controlled at 20 ± 0,1 °C.

6 PROCEDURE

6.1 Clean and dry the flask (5.1) and weigh it, with its stopper, to the nearest 0,001 g. Fill the flask with freshly boiled and cooled distilled water, and determine the apparent mass of the contents, previously brought to 20 ± 0,1 °C in the water bath (5.2).

6.2 Empty, clean and dry the flask, fill it with the sample under test, and determine in a similar manner the apparent mass of sample contained in the flask at 20 °C.

NOTE — With volatile liquids, it is essential that suitable precautions be taken to avoid loss by evaporation.

7 EXPRESSION OF RESULTS

The density of the sample at 20 °C, in grams per millilitre, is given by 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 flask at 20 °C;

m_2 is the apparent mass, in grams, of water required to fill the flask at 20 °C;

ρ is the density of water at 20 °C = 0,998 2 g/ml;

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

where ρ_a is the density of air $\approx$ 0,001 2 g/ml.*

Calculate the result to three decimal places.

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 in the International Standard to which reference is made, or regarded as optional.

* This figure varies slightly with atmopheric conditions, but normal variations will have a negligible effect on density determinations.

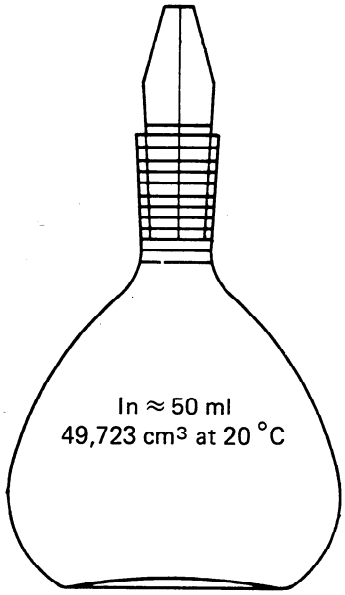

FIGURE – **50 ml pyknometer flask, type 3 (Gay-Lussac)**