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INTERNATIONAL STANDARD ISO 2097

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Glycerols for industrial use — Determination of water content — Karl Fischer method

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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 2097 was drawn up by Technical Committee ISO/TC 47, *Chemistry*.

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

Austria	India	Thailand
Belgium	Italy	Turkey
Czechoslovakia	Netherlands	United Kingdom
Egypt, Arab Rep. of	New Zealand	U.S.A.
France	Portugal	U.S.S.R.
Germany	South Africa, Rep. of	
Hungary	Switzerland	

No Member Body expressed disapproval of the document.

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INTERNATIONAL STANDARD ISO 2097-1972 (E)

Glycerols for industrial use — Determination of water content — Karl Fischer method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the manner of application of the Karl Fischer method for the determination of the water content of glycerols for industrial use.

2 REFERENCES

ISO/R 760, *Determination of water by the Karl Fischer method.*

ISO/R 1615, *Aliphatic polyhydric alcohols — Glycerine for industrial use — Determination of alkalinity or acidity — Volumetric method.*

ISO 2096, *Glycerols for industrial use — Methods of sampling.*

3 PRINCIPLE

Application of one of the methods of titration described in ISO/R 760, taking into account, in the expression of the results, the possible alkalinity of the sample.

4 SAMPLING

Prepare the laboratory sample as described in ISO 2096.

5 PROCEDURE

5.1 Test portion

Place in a weighing vessel, of suitable capacity and capable of being hermetically closed, a quantity of the laboratory sample corresponding to a maximum consumption of Karl Fischer reagent of the order of 20 to 25 ml. Determine the exact mass used by weighing to the nearest 0.001 g before and after transfer to the reaction vessel.

5.2 Determination

Determine the water content of the test portion (5.1) by carrying out any of the procedures described in ISO/R 760.

6 EXPRESSION OF RESULTS

Express the results to one place of decimals.

6.1 Direct visual or electrometric titration

Water content is given, as a percentage by mass, by the formula :

$$\frac{V \times T}{m \times 10} - 0.018\,A$$

where

V is the volume, in millilitres, of Karl Fischer reagent used for the titration;

T is the water equivalent of the Karl Fischer reagent, in milligrams of H_2O per millilitre;

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

A is the alkalinity of the sample[1], in milliequivalents per 100 g.

NOTE — In most cases the correction factor 0.018 A is negligible.

6.2 Electrometric back titration

Water content is given, as a percentage by mass, by the formula :

$$\left[\left(V - V_1 \times \frac{20}{V_2}\right) \times \frac{T}{m \times 10}\right] - 0.018\,A$$

where

V is the volume, in millilitres, of Karl Fischer reagent used in excess;

V_1 is the volume, in millilitres, of the water/methanol standard solution used for the back titration;

V_2 is the volume, in millilitres, of the water/methanol standard solution corresponding to 20 ml of Karl Fischer reagent;

T is the water equivalent of the Karl Fischer reagent, in milligrams of H_2O per millilitre;

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

A is the alkalinity of the sample[1], in milliequivalents per 100 g.

NOTE — In most cases the correction factor 0.018 A is negligible.

1) Determined according to ISO/R 1615.

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 the ISO documents to which reference is made, or regarded as optional.