BRITISH STANDARD

BS 5711-8:
1979
ISO 2097:1972

Methods of

Sampling and test for glycerol —

Part 8: Determination of water content: Karl Fischer method

[ISO title: Glycerols for industrial use — Determination of water content — Karl Fischer method]

NOTE It is recommended that this Part of BS 5711 be read in conjunction with the general information given in BS 5711-0 *"General introduction"*, issued separately.

UDC 661.188.1:547.426.1:543.812

National foreword

This Part of BS 5711 is identical with ISO 2097 *"Glycerols for industrial use — Determination of water content — Karl Fischer method"*.

With reference to **5.2**, ISO/R 760 has been revised and published as ISO 760 without technical change. The methods described in ISO 760 constitute clauses **2**, **3** and **4** of BS 2511 *"Determination of water (Karl Fischer method)"*.

CAUTION. Because of the toxicity and unpleasant odour of pyridine, it is recommended that it should be handled with care and in a well ventilated fume cupboard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been prepared under the direction of the Chemicals Standards Committee, was published under the authority of the Executive Board and comes into effect on 30 November 1979

The following BSI references relate to the work on this standard:
Committee reference CIC/6
Draft for comment 75/53579 DC

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Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

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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.

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.

[1)] Determined according to ISO/R 1615.

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Publications referred to

See Part 0 *"General introduction"* and national foreword.

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