International Standard 934

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Animal and vegetable fats and oils — Determination of water content — Entrainment method

Corps gras d'origines animale et végétale — Détermination de la teneur en eau — Méthode par entraînement

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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 934 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in February 1979.

It has been approved by the member bodies of the following countries :

Australia	Hungary	Romania
Bulgaria	India	South Africa, Rep. of
Canada	Israel	Spain
Cyprus	Kenya	Thailand
Czechoslovakia	Korea, Rep. of	Turkey
Egypt, Arab Rep. of	Malaysia	United Kingdom
Ethiopia	Mexico	Yugoslavia
France	Netherlands	
Germany, F.R.	New Zealand	

No member body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 934-1969, of which it constitutes a technical revision.

This International Standard has also been approved by the International Union of Pure and Applied Chemistry (IUPAC).

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Animal and vegetable fats and oils — Determination of water content — Entrainment method

1 Scope and field of application

This International Standard specifies a method for the determination, by entrainment, of the water content of animal or vegetable fats or oils.

The method is applicable to products having water contents greater than or equal to 0,5 % (m/m).

2 Reference

ISO 661, *Animal and vegetable fats and oils — Preparation of test sample.*

3 Definition

water content : The amount of water entrained and collected under the conditions specified in this International Standard, and expressed as a percentage by mass.

4 Principle

Entrainment of the water present in a test portion, by azeotropic distillation with the aid of an organic liquid not miscible with water, and measurement of the volume of water collected.

5 Reagent

Xylene, commercial quality, containing isomers or mixtures of isomers in varying proportions.

6 Apparatus

Usual laboratory apparatus and in particular :

6.1 Balance.

6.2 Distillation apparatus (see the figure), comprising the following components fitted together by means of ground glass joints :

6.2.1 Flask, short-necked, of capacity at least 500 ml.

6.2.2 Reflux condenser.

6.2.3 Receiver, having a **graduated tube** of capacity 5 ml, interposed between the flask (6.2.1) and the condenser (6.2.2).

NOTE — In order to remove all traces of fat from the graduated tube of the receiver and the inside of the condenser tube, thoroughly clean the apparatus by suitable means, and wash successively with distilled water and with acetone. Then dry the apparatus in a current of air without heating.

6.3 Boiling aid, for example pumice-stone fragments.

7 Sampling

Proceed from a representative sample of at least 250 g.

8 Procedure

8.1 Preparation of the test sample

Prepare the test sample in accordance with ISO 661.

8.2 Test portion

Weigh, to the nearest 0,01 g, 20 to 100 g of the test sample (8.1), according to the expected water content, into the flask (6.2.1).

8.3 Determination

Add to the flask containing the test portion (8.2), 100 to 300 ml (according to the mass of the test portion) of the xylene (clause 5) and a boiling aid (6.3). The volume of test portion and xylene together shall not exceed one-half of the volume of the flask.

Assemble the distillation apparatus (6.2).

Heat the flask gradually until the xylene boils; the water carried over by the xylene is collected in the graduated tube of the receiver (6.2.3).

When the distilled solvent is clear and no more water separates from it, stop heating and allow to stand long enough for the water to collect completely and until there is no emulsified zone. If drops of water adhere to the tube or the condenser, use a long-handled brush or a wire to combine them with the water collected in the tube. Should froth form during boiling of the xylene, the addition of 1 to 2 g of dry oleic acid or liquid paraffin is recommended.

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