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Animal and vegetable fats and oils — Determination of polar compounds content

*Corps gras d'origines animale et végétale — Dosage des composés
polaires*



Reference number
ISO 8420:1990(E)

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8420 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

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Animal and vegetable fats and oils — Determination of polar compounds content

1 Scope

This International Standard describes a method for the determination of the content of polar compounds in animal and vegetable fats and oils, hereinafter referred to as fats.

NOTE 1 Polar compounds are formed during the heating of fats and thus the method serves to assess the deterioration of frying fats with use.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 661:1989, *Animal and vegetable fats and oils — Preparation of test sample*.

ISO 5555:—¹⁾, *Animal and vegetable fats and oils — Sampling*.

3 Definition

For the purposes of this International Standard, the following definition applies.

polar compounds: Constituents of fats which are determined by column chromatography under the conditions specified in this International Standard.

Polar compounds include polar substances which occur in unused fats, such as monoglycerides, diglycerides and free fatty acids, as well as polar transformation products formed during heating as occurs during the frying of food. Non-polar compounds are mostly unaltered triglycerides.

4 Principle

Separation of a test portion by column chromatography into non-polar and polar compounds. Elution of the non-polar compounds and weighing of them. Determination of the polar compounds by difference.

5 Reagents and materials

All reagents shall be of recognized analytical grade and the water used shall be distilled water or water of equivalent purity.

5.1 Silica gel, of particle size 0,063 mm to 0,200 mm (70 mesh to 230 mesh), such as Merck No. 7734²⁾, adjusted to a water content of 5 % (*m/m*) as follows.

Place a shallow layer of the silica gel in a porcelain dish, dry in an oven at 155 °C to 160 °C for at least 4 h with occasional stirring and cool in a desiccator to room temperature. Adjust the water content of the silica gel to 5 % (*m/m*) by placing 152 g of silica gel and 8 g of water in a 500 ml flask. Stopper the flask and shake on a shaking machine for 20 min. Determine the water content by drying at 155 °C to 160 °C and, if necessary, adjust to 5 % (*m/m*) ± 0,2 % (*m/m*).

1) To be published. (Revision of ISO 5555:1983)

2) Merck No. 7734 is the trade-name of a product supplied by Merck. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.