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Animal and vegetable fats and oils — Determination of insoluble impurities content

Corps gras d'origines animale et végétale — Détermination de la teneur en impuretés insolubles

Reference number
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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

This fifth edition cancels and replaces the fourth edition (ISO 663:2007), of which it constitutes a minor revision to exclude fat coming from milk and milk products.

Animal and vegetable fats and oils — Determination of insoluble impurities content

1 Scope

This document specifies a method for the determination of the insoluble impurities content of animal and vegetable fats and oils.

If it is not desired to include soaps (particularly calcium soaps) or oxidized fatty acids in the insoluble impurities content, it is necessary to use a different solvent and procedure. In this case, an agreement is to be reached between the parties concerned.

Milk and milk products (or fat coming from milk and milk products) are excluded from the scope of this document.

2 Normative reference

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
insoluble impurities content
quantity of dirt and other foreign matter insoluble in *n*-hexane or light petroleum under the conditions specified in this document

Note 1 to entry: The content is expressed as a percentage by mass.

Note 2 to entry: These impurities include mechanical impurities, mineral substances, carbohydrates, nitrogenous substances, various resins, calcium soaps, oxidized fatty acids, fatty acid lactones, and (in part) alkali soaps, hydroxy-fatty acids and their glycerides.

4 Principle

A test portion is treated with an excess of *n*-hexane or light petroleum, then the solution obtained is filtered. The filter and residue are washed with the same solvent, then dried at 103 °C and weighed.

5 Reagents

WARNING — Attention is drawn to the regulations which specify the handling of dangerous substances. Technical, organizational and personal safety measures shall be followed.

Use only reagents of recognized analytical grade.

5.1 ***n*-Hexane**, or in the absence of this, **light petroleum**, having a distillation range between 30 °C and 60 °C and having a bromine value of less than 1.

For either solvent, the residue on complete evaporation shall not exceed 0,002 g per 100 ml.

5.2 **Kieselgur**, purified, calcinated, with loss in mass at 900 °C (red heat) of less than 0,2 % by mass.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 **Analytical balance**, with an accuracy of ±0,001 g.

6.2 **Electric drying oven**, capable of operating at 103 °C ± 2 °C.

6.3 **Conical flask**, of 250 ml capacity, with ground glass stopper.

6.4 **Desiccator**, containing an efficient desiccant.

6.5 **Ashless filter paper** (maximum ash content 0,01 %, by mass), retention value of 98 %, by mass, for particles of size greater than 2,5 µm[1)], or an equivalent **glass-fibre filter**, of diameter 120 mm, together with a metal (preferably aluminium) or glass **vessel** with a well-fitting lid.

These are alternatives to the filter (6.6) for all products except acid oils.

6.6 **Filter crucible**, glass, of grade P16 (pore size 10 µm to 16 µm), diameter 40 mm, of capacity 50 ml, together with a **suction bottle**.

This is an alternative to 6.5 for all products including acid oils.

7 Sampling

A representative sample should have been sent to the laboratory. It should not have been damaged or changed during transport or storage.

Sampling is not part of the method specified in this document. A recommended sampling method is given in ISO 5555.

8 Preparation of test sample

Prepare the test sample in accordance with ISO 661.

9 Procedure

9.1 Test portion

Weigh, to the nearest 0,01 g, approximately 20 g of the test sample (Clause 8) into a conical flask (6.3).

1) Whatman 42 (2,5 µm) filter paper or Whatman GF/D glass-fibre filter are examples of suitable products available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of these products.