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Animal and vegetable fats and oils — Preparation of test sample

Corps gras d'origines animale et végétale — Préparation de l'échantillon pour essai

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Foreword

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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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 661 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

This second edition cancels and replaces the first edition (ISO 661 : 1980), of which it constitutes a minor revision.

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Animal and vegetable fats and oils — Preparation of test sample

1 Scope

This International Standard specifies procedures for the preparation of a test sample from a laboratory sample of animal or vegetable fats and oils for the purpose of analysis.

The method is not applicable to emulsified fats such as butter, margarine, mayonnaise, etc.

2 Principle

Mixing of the fatty matter, heated, if necessary, to an appropriate temperature. If required, separation of insoluble substances by filtration and removal of water by drying with anhydrous sodium sulfate.

3 Reagent

Sodium sulfate, anhydrous.

4 Apparatus

4.1 Electric drying oven, with means of temperature regulation.

4.2 Heated filter funnel.

5 Procedure

5.1 Mixing and filtration

5.1.1 Liquid sample, clear and without sediment

Render the laboratory sample as homogeneous as possible by shaking the closed container.

5.1.2 Liquid sample, turbid or with sediment

5.1.2.1 For the determination of

a) moisture and volatile matter,

b) insoluble impurities,

c) mass per unit volume, and/or

d) any other determination requiring the use of unfiltered samples or if the determination is affected by heat,

vigorously shake the container (holding the laboratory sample) until the sediment is completely separated from the walls of the container. Immediately pour the sample into another container and check that no sediment remains adhering to the walls of the original container; if it does, remove it completely (if necessary, cutting open the container) and incorporate in the body of the sample.

5.1.2.2 For all other determinations, place the container holding the laboratory sample in the drying oven (4.1) controlled at 50 °C, leave it until the sample has reached this temperature and then proceed as in 5.1.1. If, after heating and mixing, the sample is not completely clear, filter the oil, carrying out the operation inside the oven maintained at 50 °C or by means of the heated filter funnel (4.2). Do not leave the sample in the oven for longer than necessary, in order to avoid any modification of the fatty matter by oxidation or polymerization. The filtrate shall be perfectly clear.

5.1.3 Solid sample

5.1.3.1 For the determinations a) to d) specified in 5.1.2.1, gently warm the laboratory sample until it is just mixable and mix thoroughly in order to render it as homogeneous as possible.

5.1.3.2 For all other determinations, melt the laboratory sample by keeping it in the drying oven (4.1), controlled at a temperature at least 10 °C above the melting temperature of the particular fat or oil. If, after heating, the sample is perfectly clear, proceed as in 5.1.1; if it is turbid or if it contains a sediment, filter it at the chosen temperature, either inside the oven or by means of the heated filter funnel (4.2). The filtrate shall be perfectly clear.

5.2 Drying

If the mixed sample still contains moisture (especially in the case of acid oils, fatty acids and solid fats), it shall be dried for those determinations in which the results may be affected by the presence of moisture (for example iodine value), taking all necessary precautions to avoid its oxidation. For this purpose, keep part of the thoroughly mixed sample (see 5.1.1, 5.1.2.2, or 5.1.3.2, as appropriate) in the drying oven (4.1) for as short a period as possible, at a temperature 10 °C above the melting

temperature, preferably under nitrogen, after having added anhydrous sodium sulfate (clause 3) in the proportion of 1 g to 2 g per 10 g of oil or fat. Never dry at a temperature in excess of 50 °C.

NOTE — Sodium sulfate loses its property as a desiccant at temperatures above 32,4 °C. It may therefore be necessary to dry under vacuum. Those fats for which a drying temperature above 50 °C would be necessary should be dissolved in a solvent and then dried.

Vigorously stir the heated sample together with the anhydrous sodium sulfate, then filter. If the fat or oil solidifies on cooling, carry out the filtration in the drying oven (4.1) or by means of the heated filter funnel (4.2) at an appropriate temperature which shall never exceed 50 °C.

6 Storage

The laboratory sample to be stored shall be placed in an inert and airtight container which is sealed securely, stored under refrigeration (at a maximum of 10 °C) and protected from light. Laboratory samples may be stored thus for 3 months.

By preference, that part of the laboratory sample which has not been submitted to operations which modify its composition (i.e. 5.1.2.2, 5.1.3.2 or 5.2) shall be stored.

However, a laboratory sample which has been filtered and/or dried may be stored under the same conditions.

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