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Animal and vegetable fats and oils — Determination of anisidine value

Corps gras d'origines animale et végétale — Détermination de l'indice d'anisidine

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

This fourth edition cancels and replaces the third edition (ISO 6885:2006), which has been technically revised by adding a sentence to the Scope and deleting a column in Table A.1.

Animal and vegetable fats and oils — Determination of anisidine value

1 Scope

This International Standard specifies a method for the determination of the anisidine value in animal and vegetable fats and oils. This is a measure of the amount of aldehydes present (principally α, β-unsaturated aldehydes).

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

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

3.1
anisidine value
one hundred times the increase in absorbance, measured at a wavelength of 350 nm in a 10 mm cell, of a test solution when reacted with *p*-anisidine under the test conditions specified in this International Standard

Note 1 to entry: The anisidine value has no dimensions, and is calculated and quoted on the basis of 1 g of the test sample in 100 ml of a mixture of solvent and reagent.

4 Principle

A test solution is prepared in isooctane (2,2,4-trimethylpentane). It is reacted with an acetic acid solution of *p*-anisidine. The increase in absorbance at 350 nm is measured. The anisidine value is calculated.

5 Reagents

Use only reagents of recognized analytical grade, and water complying with grade 3 of ISO 3696.

5.1 Sodium sulfate (Na_2SO_4), anhydrous.

5.2 Isooctane (2,2,4-trimethylpentane), having an absorbance not exceeding 0,01 against water in the wavelength range 300 nm to 380 nm.

5.3 4-Methoxyaniline (*p*-anisidine), anhydrous cream-coloured crystals.

WARNING — *p*-anisidine is toxic and care shall be taken to avoid contact with the skin.

Store the *p*-anisidine in a dark bottle at 0 °C to 4 °C in the dark.

No coloration (grey or pink) shall be observed. If this is present, purify the *p*-anisidine as follows.

Dissolve 4 g of *p*-anisidine in 100 ml of water at 75 °C. Add 0,5 g of sodium sulfite (Na_2SO_3) and 2 g of charcoal. Stir for 5 min and filter through a medium retention filter paper to give a clear solution. Cool the filtrate to 0 °C and leave at this temperature for at least 4 h. Filter off the crystals, preferably under vacuum, and wash with a small volume of water at about 0 °C. Dry in a vacuum desiccator containing an efficient desiccant.

5.4 Glacial acetic acid, of water content not greater than 0,1 % (mass fraction).

5.5 Anisidine reagent.

On the day of use, prepare the minimum quantity of reagent required for the analysis, in view of its toxicity and limited life. Prepare, for example, 50 ml of reagent as follows.

Dissolve 0,125 g of the *p*-anisidine (5.3) in the glacial acetic acid (5.4) in a 50 ml volumetric flask and dilute to the mark with the same solvent, avoiding exposure to strong light.

Check the absorbance against isooctane before use and discard the reagent when the difference is larger than 0,2. In any case, discard any reagent left over on the day of use.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 Spectrometer, double- or single-beam, suitable for use at a wavelength of 350 nm, with cells of optical path length 10 mm.

When a double-beam spectrometer is used, it is recommended that a pair of matched 10 mm cells be used.

6.2 Volumetric flasks, of 25 ml capacity.

6.3 Test tubes, of 10 ml capacity, fitted with ground glass stoppers.

6.4 Pipettes, of 1 ml and 5 ml capacities, equipped with a safety suction device.

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 International Standard. A recommended sampling method is given in ISO 5555.

8 Preparation of test sample

Prepare the test sample in accordance with ISO 661.

If the moisture content of the sample is greater than 0,10 % (mass fraction), it should be dried using the following procedure.

Add sodium sulfate (5.1) in the proportion of 1 g to 2 g per 10 g of the thoroughly mixed sample, at a temperature of not more than 10 °C above the melting point in the case of a solid fat. Stir thoroughly and filter, maintaining the temperature to prevent solidification.