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AMENDMENT 1
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Animal and vegetable fats and oils — Determination of ultraviolet absorbance expressed as specific UV extinction

AMENDMENT 1

Corps gras d'origines animale et végétale — Détermination de l'absorbance dans l'ultraviolet, exprimée sous la forme d'extinction spécifique en lumière ultraviolette

AMENDEMENT 1

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

Animal and vegetable fats and oils — Determination of ultraviolet absorbance expressed as specific UV extinction

AMENDMENT 1

Page 1, Clause 1

Replace the text with the following:

1 Scope

This document specifies a method for the determination of the absorbance at ultraviolet wavelengths of animal and vegetable fats and oils.

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

Page 1, Clause 2

Replace the boilerplate text with the following:

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.

Page 1, Clause 3

Add the following text above 3.1:

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

Page 2, 6.3.3

Replace the text with the following:

6.3.3 Absorbance scale. This may be checked using a reference material consisting of four solutions of potassium dichromate in perchloric acid sealed in far UV quartz cells to measure the linearity and photometric accuracy reference in the UV. The potassium dichromate-filled cells (40 mg/l, 60 mg/l, 80 mg/l and 100 mg/l) are measured against a perchloric acid blank (see Reference [7]). The net absorbance values are listed in the certificate of the reference material[1)].

WARNING — Potassium dichromate and potassium chromate are classified as CMR (carcinogenic, mutagenic, reprotoxic). Care shall be taken to avoid contact with the skin or exposure through inhalation.

1) Suitable holmium filters and potassium dichromate-sealed cells are available commercially, e.g. from Starna Scientific (www.starnascientific.com). This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this supplier.

NOTE 1 See Reference [8]. In order to check the linearity and accuracy of the absorbance scale, it is also possible to prepare a set of four solutions of potassium dichromate in 0,01 N sulfuric acid (for example: 40 mg/l, 60 mg/l, 80 mg/l and 100 mg/l). As an example, the following procedure has proved satisfactory.

a) Dry a test portion of 1 g of pure potassium dichromate for spectrophotometry at 100 °C overnight.

b) Weigh 0,100 g of dried potassium dichromate and dissolve in 0,01 N sulfuric acid solution in a 100 ml graduated flask and make up to the mark.

c) Then, proceed to four different dilutions of this mixture with 0,01 N sulfuric acid solution: 5 ml - > 50 ml, 4 ml - > 50 ml, 3 ml - > 50 ml and 2 ml - > 50 ml. These solutions can be used for six months after their preparation.

d) Measure the extinction of the four diluted solutions so obtained at 350 nm, 313 nm, 257 nm and 235 nm, using the 0,01 N sulfuric acid solution as a reference. The objective is that the relation between the potassium dichromate concentration and the absorbance is linear (R^2 higher than 0,99). The accuracy of the response can be verified with the 60 mg/l solution that needs to be prepared the day before the verification.

e) Measure the extinction of the solution so obtained at 350 nm, 313 nm, 257 nm and 235 nm, using the 0,01 N sulfuric acid solution as a reference. The extinctions measured using a 1 cm cuvette will be as follows:

λ (nm)	**Specific extinction**	**Limits**
235	124,5	122,9 to 126,2
257	144,0	142,4 to 145,7
313	48,6	47,0 to 50,3
350	106,6	104,9 to 108,2

NOTE 2 In order to check the accuracy of the response of the photocell and the photomultiplier, another possibility is to weigh 0,200 0 g of pure potassium chromate for spectrophotometry and dissolve in 0,05 N potassium hydroxide solution in a 1 000 ml graduated flask and make up to the mark. Take precisely 25 ml of the solution obtained, transfer to a 500 ml graduated flask and dilute up to the mark using the same potassium hydroxide solution. Measure the extinction of the solution so obtained at 275 nm, using the potassium hydroxide solution as a reference. The extinction measured using a 1 cm cuvette will be 0,200 ± 0,005.

Page 5, Annex A

Insert the following text above Table A.1:

The test was performed on five samples:

— A: extra virgin olive oil;

— B: second centrifugation olive oil;

— C: refined olive-pomace oil;

— D: virgin olive oil + rapeseed oil + high oleic sunflower oil;

— E: olive oil + refined soybean oil.

Page 8, Bibliography

Add the following reference:

[8] European Pharmacopoeia. *2.2.25. Absorption spectrophotometry*, ultraviolet and visible. Seventh Edition. Council of Europe. 2008

