

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS



WORLD
HEALTH
ORGANIZATION

JOINT OFFICE: Viale delle Terme di Caracalla 00100 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

Agenda Item 3

CX/FO 03/3- Add.1

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FATS AND OILS

Eighteenth Session

London, United Kingdom, 3 – 7 February 2003

DRAFT REVISED STANDARD FOR OLIVE OILS AND OLIVE POMACE OILS

COMMENTS AT STEP 6

The following comments have been received from Australia, France, European Community in response to CL 2001/4-FO and CL 2002/49-FO.

AUSTRALIA

In reference to CL 2002/49 – FO, Draft Revised Standard for Olive Oil and Olive Pomace Oils — Reminder for comments at Step 6 Australia wishes to provide the following comments.

GENERAL

Australia is concerned that Australian industry interests are not adequately reflected in the proposed standard. The draft standard does not take into account the natural variation that can occur in olive oil composition, as a result of varying environmental conditions.

3.9 Fatty acid composition as determined by gas liquid chromatography (% total fatty acids)

Australia is concerned by the proposed reduction of linolenic acid values from 1.5% to 0.0-0.9%.

Australian olive oils are characterised by a wide range of linolenic acid levels, including naturally high levels. Figures for the last year in Australia showed the range to be between 0.39-1.47%, with a mean of 0.76%. Reducing linolenic acid levels below 1.5% does not take into account natural variations in olive oil composition. Consequently these current levels will have a detrimental impact on a number of global olive oil producers, including Australia.

2.1 Saturated fatty acids at the 2-position in the triglyceride (sum of palmitic and steric acids)

Australia is concerned by the maximum level for saturated fatty acids at the 2-position in the triglyceride being set at 1.5%

Setting this level at 1.5% restricts oil composition characteristics to those only achievable within some olive oil producing countries. This low level also does not take into account Australia's naturally high palmitic acid levels and will impact significantly on our industry. Australian figures for the last year showed a palmitic average of 13.51% and these high levels would be expected to produce oils with a relatively high 2-position palmitic acid level.

FRANCE

France supports the European position.

EUROPEAN COMMUNITY

At the 16th CCFO session the Secretariat of CCFO noted that the classification of olive oils was under review in the IOOC and the EC and the Draft Standard for Olive Oil was returned to Step 6 as no consensus could be reached in London (2001). The European Community would like to submit some amendments to the Revised Standard which are a compromise between the IOOC Standard and the European legislation.

The Appendix to this standard contains provisions which are intended for voluntary application by commercial partners, with the exception of section 1.4, peroxide value; section 2.1 palmitic acid in the 2-position and section 3.6, absorbency in ultra-violet, and not for application by governments.

1. SCOPE

This standard applies to olive oils and olive-pomace oils described in Section 2 presented in a state for human consumption.

2. DESCRIPTION

2.1 **Olive oil** is the oil obtained solely from the fruit of the olive tree (*Olea europaea* L), to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

2.2 **Virgin olive oils** ~~are~~ **is** the **olive oils** obtained from the fruit of the olive tree solely by mechanical or other physical means under conditions, particularly thermal conditions, that do not lead to alterations in the oil, and which has not undergone any treatment other than washing, decanting, centrifuging and filtration¹.

2.3 **Olive-pomace oil** is the oil obtained by treating olive pomace with solvents or in certain cases by physical treatments, to the exclusion of oils obtained by re-esterification processes and of any mixture with oils of other kinds¹.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 **Extra virgin olive oil**: virgin olive oil with a free acidity, expressed as oleic acid, of not more than ~~1~~ **0.8** gram per 100 grams and ~~the organoleptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~.

3.2 **Virgin olive oil**: virgin olive oil with a free acidity, expressed as oleic acid, of not more than 2.0 grams per 100 grams and the ~~organoleptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~.

3.3 **Ordinary virgin olive oil**: virgin olive oil with a free acidity, expressed as oleic acid, of not more than 3.3 grams per 100 grams and ~~the organoleptic~~ whose other characteristics correspond to those laid down for this category ~~in section 3.8~~².

~~[16]~~

¹ Virgin olive oils non suitable for human consumption and having certain characteristics to be laid down by the countries concerned, can be classified as olive-pomace oils.

² This product may only be sold direct to the consumer if permitted in the country of retail sale.

3.4 **Refined olive oil:** ~~is the~~ olive oil obtained from virgin olive oils by refining methods which do not lead to alterations in the initial glyceridic structure. It has a free acidity, expressed as oleic acid, of not more than 0.3 grams per 100 grams and its other characteristics correspond to those laid down for this category²;

3.5 **Olive oil:** ~~marketed as such, is the~~ oil consisting of a blend of refined olive oil and virgin olive oils suitable for human consumption, as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3. It has a free acidity, expressed as oleic acid, of not more than ~~1.5~~ 1 grams per 100 grams and its other characteristics correspond to those laid down for this category³.

3.6 **Refined olive-pomace oil:** oil obtained from crude olive-pomace oil by refining methods which do not lead to alterations in the initial glyceridic structure. ~~It is intended for use either as it is or else in blends with virgin olive oil, as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3.~~ It has a free acidity, expressed as oleic acid, of not more than 0.3 grams per 100 grams and its other characteristics correspond to those laid down for this category².

3.7 **Olive-pomace oil:** oil consisting of a blend of refined olive-pomace oil and virgin olive oils as identified in section 2 and meeting the requirements identified in section 3.1, 3.2 and 3.3. It has a free acidity, expressed as oleic acid, of not more than ~~1.5~~ 1 grams per 100 grams and its other characteristics correspond to those laid down for this category³.

3.8 Organoleptic characteristics (odour and taste) of virgin olive oils

	Median of the defect	Median of the fruity attribute
Extra virgin olive oil	Me = 0	Me > 0
Virgin olive oil	0 < Me ≤ 2.5	Me > 0
Ordinary virgin olive oil	2.5 < Me ≤ 6.0*	

* or when the median of the defect is less than or equal to 2.5 and the median of the fruity attribute is equal to 0.

3.9 Fatty acid composition as determined by gas ~~liquid~~ chromatography (% total fatty acids)

	Virgin olive oils	Olive oil Refined olive oil	Olive-pomace oils
Fatty acid			
C14:0	0.0 - 0.05	0.0 - 0.05	0.0 - 0.05
C16:0	7.5 - 20.0	7.5 - 20.0	7.5 - 20.0
C16:1	0.3 - 3.5	0.3 - 3.5	0.3 - 3.5
C17:0	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C17:1	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3
C18:0	0.5 - 5.0	0.5 - 5.0	0.5 - 5.0
C18:1	55.0 - 83.0	55.0 - 83.0	55.0 - 83.0
C18:2	3.5 - 21.0	3.5 - 21.0	3.5 - 21.0
C18:3	0.0 - 0.9	0.0 - 0.9	0.0 - 0.9
C20:0	0.0 - 0.6	0.0 - 0.6	0.0 - 0.6
C20:1	0.0 - 0.4	0.0 - 0.4	0.0 - 0.4
C22:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.3
C24:0	0.0 - 0.2	0.0 - 0.2	0.0 - 0.2
<i>Trans</i> fatty acids			

³ The country of retail sale may require a more specific denomination.

C18:1 T	0.0 - 0.05	0.0 - 0.20	0.0 - 0.40
C18:2 T + C18:3 T	0.0 - 0.05	0.0 - 0.30	0.0 - 0.35

3.10 Sterol and triterpene alcohols composition

3.10.1 ~~Desmethylsterols~~ Sterol composition (% total sterols)

Cholesterol	≤ 0.5
Brassicasterol	≤ 0.2 for olive-pomace oils ≤ 0.1 for other grades
Campesterol	≤ 4.0
Stigmasterol	< campesterol
Delta-7-stigmasterol ol	≤ 0.5
Beta-sitosterol + delta-5-avenasterol + delta-5-23-stigmastadienol + Clerosterol + sitostanol + delta-5-24-stigmastadienol	≥ 93.0

3.10.2. Minimum value for total sterols

Virgin olive oils)	
Refined olive oil)	1,000 mg/kg
Olive oil)	
Refined olive-pomace oil	1,800 mg/kg
Olive-pomace oil	1,600 mg/kg

3.10.3. Maximum erythrodiol and uvaol content (% total sterols)

Virgin olive oils)	
Refined olive oil)	≤ 4.5
Olive oil)	

3.11 Waxes

	Maximum-level
Virgin olive oils	≤250 mg/kg
Refined olive oil	≤350 mg/kg
Olive oil	≤350 mg/kg
<u>Refined olive pomace oil</u>	<u>>350 mg/kg</u>
<u>Olive pomace oil</u>	<u>>350 mg/kg</u>

3.12 Detection of seed oils

	Maximum difference between the actual and theoretical ECN 42 triglyceride contents
Virgin olive oils	0.2
Refined olive oil	0.3
Olive oil	0.3
Olive-pomace oils	0.5

3.13 Stigmastadienes content (detection of refined vegetable oils)

Maximum stigmastadiene content (mg/kg)

Virgin olive oils	0.15
Refined olive oil	50

4. FOOD ADDITIVES

4.1 Virgin olive oils

No additives are permitted in these products.

4.2 Refined olive oil, olive oil, refined olive-pomace oil and olive-pomace oil

The addition of alpha-tocopherol to the above products is permitted to restore natural tocopherol lost in the refining process. The concentration of alpha-tocopherol in the final product should not exceed 200 mg/kg.

5. CONTAMINANTS

5.1 Heavy metals

The products covered by the provisions of this standard shall comply with maximum limits being established by the Codex Alimentarius Commission but in the meantime the following limits will apply:

	<u>MAXIMUM PERMISSIBLE CONCENTRATION</u>
Lead (Pb)	0.1 mg/kg
Arsenic (As)	0.1 mg/kg

5.2 Pesticide residues

The products covered by the provisions of this standard shall comply with those maximum residue limits established by the Codex Alimentarius Commission for these commodities.

5.3 Halogenated solvents

Maximum concentration of individual halogenated solvents	0.1 mg/kg
Maximum sum of concentration of all halogenated solvents	0.2 mg/kg

6. HYGIENE

6.1 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 3-1997), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

7. LABELLING

The products shall be labelled in accordance with the Codex General Standard for Labelling of Prepackaged Foods (CODEX STAN 1 - 1985, Rev. 1-1991).

7.1 Name of the food

The name of the product shall be consistent with the descriptions as shown in Section 3 of this standard. In no case shall the designation 'olive oil' be used to refer to olive-pomace oils.

~~7.2 Free acidity~~

~~The free acidity of the oil shall be declared on the label and expressed in terms of oleic acid.~~

7.3 Labelling of Non-Retail Containers

Information on the above labelling requirements shall be given either on the container or in accompanying documents, except that the name of the food, lot identification and the name and address of the manufacturer or packer shall appear on the container.

However, lot identification and the name and address of the manufacturer or packer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

8. METHODS OF ANALYSIS AND SAMPLING

8.1 Determination of the organoleptic characteristics

According to COI/T.20/Doc. no. 15.

8.2 Determination of free acidity

According to IUPAC 2.201 or ISO 660: 1996.

8.3 Determination of the fatty acid composition

According to IUPAC 2.301, 2.302 and 2.304 or ISO 5508: 1990 and 5509: 2000 or AOCS Ce 2-66, Ch 2-91.

8.4 Determination of *trans* fatty acids content

According to COI/T.20/Doc no. 17 or IUPAC 2.304 or ISO 15304: 2001 or AOCS Ce 1f-96.

8.5 Determination of wax content

According to COI/T.20/Doc. no. 18.

8.6 Calculation of the difference between the real and theoretical ECN 42 triglyceride content

According to IUPAC 2.507 (for purification of oils prior to triglyceride analysis) and IUPAC 2.324 and COI/T.20/Doc. no. 20.

8.7 Determination of sterols composition and content

According to COI/T.20/Doc. no. 10, or IUPAC 2.403 or ISO 12228: 1999.

8.8 Determination of erythrodiol content

According to IUPAC 2.431.

8.9 Detection of refined vegetable oils

According to COI/T.20/Doc. no. 11 and COI/T.20/Doc. no. 16 or ISO 15788-1: 1999.

8.10 Determination of alpha-tocopherol

According to IUPAC 2.432 or ISO 9936-1997.

8.11 Determination of arsenic

According to AOAC 952.13, IUPAC 3.136, AOAC 942.17, or AOAC 985.16.

8.12 Determination of lead

According to IUPAC 2.632, AOAC 994.02 or ISO 12193: 1994.

8.13 Detection of traces of halogenated solvents

According to COI/T.20/Doc. no. 8, Corr.1, 1990.

8.14 Sampling

According to ISO 661: 1989 and ISO 5555: 2001.

APPENDIX

OTHER QUALITY AND COMPOSITION FACTORS

1. QUALITY CHARACTERISTICS

Maximum level

1.1 Moisture and volatile matter:

Virgin olive oil	0.2 %
Refined olive oil	0.1 %
Olive oil	0.1 %
Refined olive-pomace oil	0.1 %
Olive-pomace oil	0.1 %

1.2 Insoluble impurities:

Virgin olive oil	0.1 %
Refined olive oil	0.05 %
Olive oil	0.05 %
Refined olive-pomace oil	0.05 %
Olive-pomace oil	0.05 %

1.3 Trace metals:

Iron (Fe)	3 mg/kg
Copper (Cu)	0.1 mg/kg

1.4 Peroxide value

Virgin olive oil	20 milliequivalents of active oxygen/kg oil
Refined olive oil	5 milliequivalents of active oxygen/kg oil
Olive oil	15 milliequivalents of active oxygen/kg oil
Refined olive-pomace oil	5 milliequivalents of active oxygen/kg oil
Olive-pomace oil	15 milliequivalents of active oxygen/kg oil

1.5 Organoleptic characteristics:

1.5.1 Virgin olive oil:

See Section 3 of Standard.

1.5.2 Others:

	<u>Odour</u>	<u>Taste</u>	<u>Colour</u>
Refined olive oil	acceptable	acceptable	Light yellow
Olive oil	good	good	Light, yellow to green
Refined olive-pomace oil	acceptable	acceptable	Light, yellow to brownish yellow
Olive-pomace oil	acceptable	acceptable	Light, yellow to green

1.5.3 Appearance at 20°C for 24 hours:

Limpid

2. COMPOSITION CHARACTERISTICS

**2.1 Saturated fatty acids at the 2-position in the triglyceride (sum of palmitic & stearic acids):
Percentage of palmitic acid in the 2- position**

	<u>Maximum level</u>
Virgin olive oil	1.5 % <u>1.0%</u>
Refined olive oil	1.8 % <u>1.1%</u>
Olive oil	1.8 % <u>1.1%</u>
Refined olive-pomace oil	2.2 % <u>1.4%</u>
Olive-pomace oil	not specified <u>1.4%</u>

3. CHEMICAL AND PHYSICAL CHARACTERISTICS

3.1	Relative density:	
	0.910-0.916 (20°C/water at 20°C)	
3.2	Refractive index:	
	Virgin olive oil)	1.4677-1.4705 (nD 20°C)
	Refined olive oil)	
	Olive oil)	
	Olive-pomace oil)	
3.3	Saponification value:	1.4680-1.4707 (nD 20°C)
	Virgin olive oil)	184-196 mg KOH/kg
	Refined olive oil)	
	Olive oil)	
	Olive-pomace oil)	
3.4	Iodine value (Wijs):	
	Virgin olive oil)	75-94
	Refined olive oil)	
	Olive oil)	
	Olive-pomace oil)	75-92
3.5	Unsaponifiable matter:	
		Maximum level
	Virgin olive oil)	15 g/kg
	Refined olive oil)	
	Olive oil)	
	Olive-pomace oil)	30 g/kg

3.6 Absorbency in ultra-violet

a) k 270

	<u>Absorbency in ultra-violet at 270 nm</u>	<u>Delta E</u>
Extra virgin olive oil	≤ 0.25 <u>≤ 0.20</u>	≤ 0.01
Fine -virgin olive oil	≤ 0.25	≤ 0.01
Ordinary virgin olive oil	≤ 0.30 <u>0.25</u> (*)	≤ 0.01
Refined olive oil	≤ 1.10	≤ 0.16
Olive oil	≤ 0.90	≤ 0.15 <u>≤ 0.13</u>

Refined olive- residue pomace oil	≤ 2.00	≤ 0.20
Olive- residue pomace oil	≤ 1.70	≤ 0.18

* After passage of the sample through activated alumina, absorbency at ~~20~~ 270 nm. shall be equal to or less than 0.11.

b) K232

Absorbency in ultra-violet at 232 nm

<u>Extra virgin olive oil</u>	<u>≤ 2.50</u>
<u>Virgin olive oil</u>	<u>≤ 2.60</u>
<u>Ordinary virgin olive oil</u>	<u>≤ 2.60</u>
<u>Refined olive oil</u>	<u>≤ 3.40</u>
<u>Olive oil</u>	<u>≤ 3.30</u>
<u>Refined olive-pomace oil</u>	<u>≤ 5.50</u>
<u>Olive-pomace oil</u>	<u>≤ 5.30</u>

4. METHODS OF ANALYSIS AND SAMPLING

4.1 Determination of moisture and volatile matter

According to IUPAC 2.601 or ISO 662: 1998.

4.2 Determination of the insoluble impurities in light petroleum

According to IUPAC 2.604 or ISO 663: 2000.

4.3 Determination of trace metals

According to IUPAC 2.631 or ISO 8294: 1994 or AOAC 990.05.

4.4 Determination of saponification value

According to IUPAC 2.202 or ISO 3657: 1988.

4.5 Determination of unsaponifiable matter

According to IUPAC 2.401 (part 1-5) or ISO 3596: 2000 or ISO 18609: 2000.

4.6 ~~Determination of the fatty acids in the 2-position of the triglycerides~~

~~According to IUPAC 2.210 or ISO 6800: 1997.~~

Determination of the palmitic acid in the 2-position of the triglycerides

According to COI/T.20/Doc. n°23

4.7 Determination of the peroxide value

According to IUPAC 2.501 or AOCS Cd 8b-90 (97) or ISO 3960: 1998.

4.8 Determination of relative density

According to IUPAC 2.101, with the appropriate conversation factor.

4.9 Determination of refractive index

According to IUPAC 2.102 or ISO 6320: 2000.

4.10 Determination of iodine value

According to IUPAC 2.205/1, ISO 3961: 1996, AOAC 993.20 or AOCS Cd 1d-92 (97).

4.11 Determination of the organoleptic characteristics

According to COI/T.20/Doc. no. 15.

4.12 Determination of the absorbency in ultra-violet

According to COI/T.20/Doc. no. 19.

4.13 Sampling

According to ISO 661: 1989 and ISO 5555: 2001.

~~[16] This product may only be sold direct to the consumer if permitted in the country of retail sale.~~
