INTERNATIONAL OLIVE OIL COUNCIL

COI/T.15/NC no. 2/Rev. 10
8 November 2001

ENGLISH
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TRADE STANDARD APPLYING TO OLIVE OIL AND OLIVE-POMACE OIL

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Resolution no. RES-2/85-IV/01

TRADE STANDARD APPLYING TO OLIVE OIL AND OLIVE-POMACE OIL

THE INTERNATIONAL OLIVE OIL COUNCIL,

Having regard to Resolution RES-2/80-IV/99 of 10 June 1999 whereby the Council adopted the trade standard applying to olive oil and olive-pomace oil referenced COI/T.15/NC no. 2/Rev. 9, which amended standard COI/T.15/NC no. 2/Rev. 8 of 25 November 1998 as regards the labelling declarations on containers intended for direct sale to the consumer,

Having regard to the decision taken by the Council at its 85th session to adopt method COI/T.20/Doc. no. 24 *Preparation of the fatty acid methyl esters from olive oil and olive-pomace oil* and to amend section 11.3 of the standard accordingly in order to replace the reference to ISO 5509 by a reference to method COI/T.20/Doc. no. 24,

DECIDES

The trade standard applying to olive oil and olive-pomace oil, COI/T.15/NC no.2/Rev. 10 of 8 November 2001, shall replace and rescind the trade standard applying to olive oil and olive-pomace oil referenced COI/T.15/NC no. 2/Rev. 9 of 10 June 1999.

The Members shall take whatever measures are appropriate, in the manner required by their legislation, to apply the standard adopted and shall notify the Executive Secretariat of any such measures as soon as they are taken.

The non-Member States involved in international trade in olive oils and olive-pomace oils shall be invited to take into consideration the standard adopted and to adapt their regulations to the provisions thereof.

Madrid (Spain), 8 November 2001

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TRADE STANDARD APPLYING TO OLIVE OIL AND OLIVE-POMACE OIL

1. SCOPE

This standard applies to olive oil and olive-pomace oil that is the object of international trade or of concessional or food aid transactions.

2. DESIGNATIONS AND DEFINITIONS

2.1. Olive oil is the oil obtained solely from the fruit of the olive tree *(Olea europaea sativa* Hoffm. & Link), to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds. It is marketed in accordance with the following designations and definitions:

2.1.1. Virgin olive oil is the oil 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, decantation, centrifugation and filtration.

2.1.1.1. Virgin olive oil fit for consumption as it is * includes:

i) Extra virgin olive oil: virgin olive oil which has a free acidity, expressed as oleic acid, of not more than 1 gram per 100 grams, and the organoleptic characteristics of which correspond to those fixed for this category in this standard.

* Oil which may be referred to as "natural".

ii) Virgin olive oil (the qualifier "fine" may be used at the production and wholesale stage): virgin olive oil which has a free acidity, expressed as oleic acid, of not more than 2 grams per 100 grams and the organoleptic characteristics of which correspond to those fixed for this category in this standard.

iii) Ordinary virgin olive oil: virgin olive oil which has a free acidity, expressed as oleic acid, of not more than 3.3 grams per 100 grams and the organoleptic characteristics of which correspond to those fixed for this category in this standard.

2.1.1.2. Virgin olive oil not fit for consumption as it is, designated lampante virgin olive oil, is virgin olive oil which has a free acidity, expressed as oleic acid, of more than 3.3 grams per 100 grams and/or the organoleptic characteristics of which correspond to those fixed for this category in this standard. It is intended for refining or for technical purposes.

2.1.2. 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.

2.1.3. Olive oil is the oil consisting of a blend of refined olive oil and virgin olive oil fit for consumption as it is.

2.2. Olive-pomace oil is the oil obtained by treating olive pomace with solvents, to the exclusion of oils obtained by re-esterification processes and of any mixture with oils of other kinds. It is marketed in accordance with the following designations and definitions:

2.2.1. Crude olive-pomace oil is olive-pomace oil intended for refining with a view to its use in food for human consumption, or intended for technical purposes.

2.2.2. Refined olive-pomace oil is the oil obtained from crude olive-pomace oil by refining methods which do not lead to alterations in the initial glyceridic structure.

2.2.3. Olive-pomace oil is the oil comprising the blend of refined olive-pomace oil and virgin olive oil fit for consumption as it is. In no case shall this blend be called "olive oil".

3. PURITY CRITERIA

The identity characteristics comprising the purity criteria shall be applicable to olive oil and olive-pomace oil.

The limits established for each criterion include the precision values of the attendant recommended method.

3.1. Sterol composition (% of total sterols)

	Olive oils and olive-pomace oils
- Cholesterol	≤ 0.5
- Brassicasterol	≤ 0.1 *
- Campesterol	≤ 4.0
- Stigmasterol	< campesterol in edible oils
- Delta-7-stigmastenol	≤ 0.5
- Beta-sitosterol + delta-5--avenasterol + delta-5-23-stigmastadienol + clerosterol + sitostanol + delta 5-24-stigmastadienol	≥ 93.0

3.2. Total sterols content (mg/kg)

- Virgin olive oils)	
- Refined olive oil)	≥ 1000
- Olive oil)	
- Crude olive-pomace oil	≥ 2500
- Refined olive-pomace oil	≥ 1800
- Olive-pomace oil	≥ 1600

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* Limit raised to ≤ 0.2 for olive-pomace oils.

3.3. Fatty acid composition using gas-liquid chromatography (% m/m of methyl esters):

- Myristic acid	≤ 0.05
- Palmitic acid	7.5 - 20.0
- Palmitoleic acid	0.3 - 3.5
- Heptadecanoic acid	≤ 0.3
- Heptadecenoic acid	≤ 0.3
- Stearic acid	0.5 - 5.0
- Oleic acid	55.0 - 83.0
- Linoleic acid	3.5 - 21.0
- Linolenic acid	≤ 1.0
- Arachidic acid	≤ 0.6
- Gadoleic acid (eicosenoic)	≤ 0.4
- Behenic acid	≤ 0.2*
- Lignoceric acid	≤ 0.2

3.4. Saturated fatty acid content in the 2-position in the triglycerides: The maximum acceptable level is the sum of the palmitic and stearic acids:

- Virgin olive oils	≤ 1.5%
- Refined olive oil	≤ 1.8%
- Olive oil	≤ 1.8%
- Crude olive-pomace oil	≤ 2.2%
- Refined olive-pomace oil	≤ 2.2%
- Olive-pomace oil	≤ 2.2%

3.5. Unsaponifiable matter

- Olive oils	≤ 15 g/kg
- Olive-pomace oils	≤ 30 g/kg

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* Limit raised to ≤ 0.3 for olive-pomace oils.

3.6. Detection of olive-pomace oil

	Lampante virgin olive oil	Edible virgin olive oils	Refined olive oil	Olive oil
Waxes mg/kg C40+C42+C44+C46	≤ 350	≤ 250	≤ 350	≤ 350
Erythrodiol + uvaol/ total sterols %	≤ 4.5	≤ 4.5	≤ 4.5	≤ 4.5

3.7. Detection of seed oils

Maximum difference between the real and theoretical ECN 42 triglyceride content:

- Edible virgin olive oils 0.2
- Refined olive oil 0.3
- Olive oil 0.3
- Lampante virgin olive oil 0.3
- Refined olive-pomace oil 0.5
- Olive-pomace oil 0.5
- Crude olive-pomace oil 0.6

3.8. Detection of refined vegetable oils

	Stigmastadienes ppm	R1
- Edible virgin olive oils	≤ 0.15	
- Lampante virgin olive oil	≤ 0.50	
- Refined olive oil	≤ 50*	≥12
- Olive oil	≤ 50*	≥12
- Crude olive-pomace oil	≤ 5 *	no limit
- Refined olive pomace oil	≤ 120*	≥10
- Olive-pomace oil	≤ 120*	≥10

The R1 ratio = $\frac{\text{stigmasta-3,5-diene}}{\text{campesta-3,5-diene}}$ is to be applied to oils whose stigmastadiene content is greater than 4 ppm.

3.9. Trans fatty acid content

	C18:1 T + C18:3 T %	C18:2 T %
- Edible virgin olive oils	≤ 0.05	≤ 0.05
- Lampante virgin olive oil	≤ 0.10	≤ 0.10
- Refined olive oil	≤ 0.20	≤ 0.30
- Olive oil	≤ 0.20	≤ 0.30
- Crude olive-pomace oil	≤ 0.20	≤ 0.10
- Refined olive-pomace oil	≤ 0.40	≤ 0.35
- Olive-pomace oil	≤ 0.40	≤ 0.35

* Provisional limits

4. QUALITY CRITERIA

The limits established for each criterion and designation include the precision values of the attendant recommended method

	Extra virgin olive oil	Virgin olive oil	Ordinary virgin olive oil	Lampante virgin olive oil *	Refined olive oil	Olive oil	Crude olive-pomace oil	Refined olive-pomace oil	Olive-pomace oil
4.1 Organoleptic characteristics									
- odour and taste					acceptable	good		acceptable	good
- odour and taste (on a continuous scale):									
. median of defect	Me = 0	0 < Me ≤ 2.5	2.5 <Me ≤ 6.0***	Me > 6.0					
. median of the fruity attribute	Me > 0	Me > 0							
- colour					light yellow	light, yellow to green		light, yellow to brownish yellow	light, yellow to green
- aspect at 20°C for 24 hours					limpid	limpid		limpid	limpid
4.2. Free acidity % m/m expressed in oleic acid	≤ 1.0	≤ 2.0	≤ 3.3	> 3.3	≤ 0.3	≤ 1.5	no limit	≤ 0.3	≤ 1.5
4.3. Peroxide value in milleq. Peroxide oxygen per kg/oil	≤ 20	≤ 20	≤ 20	no limit	≤ 5	≤ 15	no limit	≤ 5	≤ 15
4.4. Absorbency in ultra-violet ($K^{1\%}_{1cm}$)									
- 270 nm	≤ 0.25	≤ 0.25	≤ 0.30 **	no limit**	≤ 1.10	≤ 0.90		≤ 2.00	≤ 1.70
- Δ K	≤ 0.01	≤ 0.01	≤ 0.01		≤ 0.16	≤ 0.15		≤ 0.20	≤ 0.18

* It is not obligatory for the criteria in 4.1, 4,2 and 4.3 to be concurrent; one is sufficient.
** After passage of the sample through activated alumina, absorbency at 270 nm shall be equal to or less than 0.11.
*** 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.

5. FOOD ADDITIVES

5.1. Virgin olive oils and crude olive-pomace oil:

none permitted.

5.2. Refined olive oil, olive oil, refined olive-pomace oil and olive-pomace oil: alpha-tocopherol permitted to restore natural tocopherol lost in the refining process.

Maximum level: 200 mg/kg of total alpha-tocopherol in the final product.

6. CONTAMINANTS

	Extra virgin olive oil	Virgin olive oil	Ordinary virgin olive oil	Lampante virgin olive oil	Refined olive oil	Olive oil	Crude olive-pomace oil	Refined olive-pomace oil	Olive-pomace oil
6.1 Moisture and volatile matter (% m/m)	≤ 0.2	≤ 0.2	≤ 0.2	≤ 0.3	≤ 0.1	≤ 0.1	≤ 1.5	≤ 0.1	≤ 0.1
6.2. Insoluble impurities (% m/m) in light petroleum	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.2	≤ 0.05	≤ 0.05		≤ 0.05	≤ 0.05
6.3. Flash point	-	-	-	-	-	-	≥ 120°C	-	-
6.4. Trace metals mg/kg									
Iron	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0		≤ 3.0	≤ 3.0
Copper	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1		≤ 0.1	≤ 0.1
6.5. Halogenated solvents									
Each solvent Detected Mg/kg	≤ 0.1	≤ 0.1	≤ 0.1		≤ 0.1	≤ 0.1		≤ 0.1	≤ 0.1
Sum of solvents detected, mg/kg	≤ 0.2	≤ 0.2	≤ 0.2		≤ 0.2	≤ 0.2		≤ 0.2	≤ 0.2

7. HYGIENE

It is recommended that the products intended for human consumption covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (CAC/RCP 1 - 1969, Rev. 2 - 1985).

8. PACKING

Olive oils and olive-pomace oils intended for international trade shall be packed in containers complying with the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (CAC/RCP 1 - 1969, Rev. 2 - 1985).

The containers used may be:

8.1. tanks, containers, vats, which permit the transportation in bulk of olive oils and olive-pomace oils;

8.2. metal drums, in good condition, hermetically-sealed, which should be internally covered with a suitable varnish;

8.3. metal tins and cans, lithographed, new, hermetically-sealed, which should be internally covered with a suitable varnish;

8.4. demi-johns, glass bottles or bottles made of suitable macromolecular material.

9. CONTAINER FILLING TOLERANCE

The volume occupied by the contents shall under no circumstances be less than 90% of the capacity of the container, except in the case of tin containers with a capacity of, or less than, 1 litre in which the volume occupied shall under no circumstances be less than 80% of the capacity of the container; this capacity is equal to the volume of distilled water at 20^{o}C which the container can hold when full.

10. LABELLING

In addition to sections 2, 3, 7 and 8 of the Codex General Standard for the Labelling of Pre-packaged Foods (CODEX STAN 1-1985, Rev.1 - 1991) and the guidelines applying to food not intended for direct sale to consumers, the specific provisions providing the following information shall be applied:

10.1. On containers intended for direct sale to consumers

10.1.1. Name of the product

The labelling on each container shall indicate the specific designation of the product contained, complying in every way with the relevant provisions of this standard.

10.1.1.1. Designations of olive oil:

- Extra virgin olive oil*
- Virgin olive oil*
- Ordinary virgin olive oil*
- Refined olive oil
- Olive oil**

10.1.1.2. Designations of olive-pomace oil:

- Refined olive-pomace oil
- Olive-pomace oil.

10.1.2. Net contents

The net contents shall be declared by weight or volume in the metric system ("Système International" units).

10.1.3. Name and address

The name and address of the manufacturer, packer, distributor, importer, exporter or seller shall be declared.

10.1.4. Country of origin

The name of the country of origin shall be declared. When the product undergoes substantial processing in a second country, the country in which such processing is carried out shall be considered as the country of origin for labelling purposes.

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* Oil which may likewise be referred to as "natural".

** The terms "pure" or "100% pure" may figure on the label as a specification of the product.

10.1.5. Indications of source and appellations of origin

10.1.5.1. Indications of source

The labels of virgin olive oils may indicate their source (country, region or locality) when they have been empowered to do so by their country of origin and when such virgin olive oils have been produced, packed and originate exclusively in the country, region or locality mentioned.

10.1.5.2. Appellations of origin

The labels of extra virgin olive oils may indicate their appellation of origin (country, region or locality) when they have been awarded such an appellation, in accordance with the terms provided under the regulations of their country of origin and when such extra virgin olive oil has been produced, packed and originates exclusively in the country, region or locality mentioned.

10.1.6. Lot identification

Each container shall be embossed or otherwise permanently marked in code or in clear to identify the producing factory and the lot.

10.1.7. Date marking and storage conditions

10.1.7.1. Date of minimum durability

In the case of pre-packaged products intended for the end consumer, the date of minimum durability (preceded by the words "best before end") shall be declared by the month and year in uncoded numerical sequence. The month may be indicated by letters in those countries where such use will not confuse the consumer; if the shelf life of the product is valid to December, the expression "end (stated year)" may be used as an alternative.

10.1.7.2. Storage instructions

Any special conditions for storage shall be declared on the label if the validity of the date of minimum durability depends thereon.

10.2. On forwarding packs of oils intended for human consumption

In addition to the details noted under section **10.1.**, the following inscription shall appear:

- number and type of containers held in pack.

10.3. On containers allowing the transportation in bulk of olive oils and olive-pomace oils

The labelling on each container shall include:

10.3.1. Name of the product

The name shall indicate the specific designation of the product contained, complying in every way with the provisions of this standard.

10.3.2. Net contents

The net contents shall be declared by weight or volume in the metric system ("Système International" units).

10.3.3. Name and address

The name and address of the manufacturer, distributor or exporter shall be declared.

10.3.4. Country of origin

The name of the exporting country shall be declared.

11. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling given below are international referee methods. The latest version of these methods should be used.

11.1. Sampling

According to ISO method 5555, "Animal and vegetable fats and oils - Sampling".

11.2. Preparation of the test sample

According to ISO method 661, "Animal and vegetable fats and oils - Preparation of the test sample".

11.3. Determination of the fatty acid composition

According to the capillary column ISO method 5508, "Analysis by gas chromatography of methyl esters of fatty acids" and COI/T.20/Doc. no. 24, "Preparation of the fatty acid methyl esters from olive oil and olive-pomace oil".

11.4. Determination of the unsaponifiable matter

According to IUPAC method no. 2.401, "Determination of the unsaponifiable matter", using diethyl ether, or ISO 3596 - 1.

The results are expressed in g/unsaponifiable matter per kg/oil.

11.5. Detection of olive-pomace oil

According to the following methods:

- COI/T.20/Doc. no. 18, "Determination of wax content by capillary-column gas liquid chromatography".

- IUPAC no. 2.431, "Determination of the erythrodiol content". Capillary columns are recommended.

11.6. Detection of seed oils

According to the method COI/T.20/Doc. no. 20, "Determination of the difference between real and theoretical ECN 42 triglyceride content".

The prior purification of the oils should be performed according to IUPAC method no. 2.507, "Determination of the polar compounds in frying fats".

11.7. Detection of refined vegetable oils

According to the following methods:

- COI/T.20/Doc. no. 11, "Determination of stigmastadienes in vegetable oils";

- COI/T.20/Doc. no. 16, "Determination of sterenes in refined vegetable oils".

11.8. Determination of the trans fatty acid content

According to the method COI/T.20/Doc. no. 17, "Determination of trans unsaturated fatty acids by capillary column gas chromatography.

11.9. Determination of the sterol composition and total sterols content

According to the method COI/T.20/Doc. no. 10, "Determination of the composition and content of sterols by capillary-column gas chromatography".

11.10. Determination of the fatty acids in the 2-position in the triglycerides

According to IUPAC method no. 2.210, "Determination of the fatty acids in the 2-position in the triglycerides of oils and fats", or ISO 6800.

11.11. Determination of the organoleptic characteristics

According to the method COI/T.20/Doc. no. 15, "Organoleptic assessment of virgin olive oil".

11.12. Determination of the free acidity

According to ISO method 660, "Determination of acid value and acidity".

11.13. Determination of the peroxide value

According to IUPAC method no. 2.501, "Determination of the peroxide value (P.V.)", or to ISO 3960.

11.14. Determination of the absorbency in ultra-violet

According to the method COI/T.20/Doc. no. 19, "Spectrophotometric investigation in the ultraviolet".

11.15. Determination of the alpha-tocopherol

According to IUPAC method no. 2.432, "Identification and determination of tocopherols".

11.16. Determination of the moisture and volatile matter

According to IUPAC method no. 2.601, "Determination of the moisture and volatile matter", or to ISO 662.

11.17. Determination of the insoluble impurities in light petroleum

According to IUPAC method no. 2.604, "Determination of the insoluble impurities", or to ISO 663.

11.18. Determination of the flash point

According to the FOSFA International method.

11.19. Detection of trace metals

According to IUPAC method no. 2.631, "Determination of copper, iron and nickel by direct graphite furnace atomic absorption spectrometry", or ISO 8294.

11.20. Detection of traces of halogenated solvents

According to the method COI/T.20/Doc. no. 8/Corr. 1, "Determination of tetrachloroethylene in olive oils by gas-liquid chromatography".

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