

**STATE OF CALIFORNIA**

**DEPARTMENT OF FOOD AND AGRICULTURE**



**Grade and Labeling Standards  
for Olive Oil, Refined-Olive Oil and  
Olive-Pomace Oil**

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# CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

## Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil

### Table of Contents

1.0	SCOPE.....	1
2.0	OBJECTIVE .....	1
3.0	PRODUCT DESCRIPTION AND DEFINITIONS .....	1
4.0	GRADES OF OLIVE OIL, REFINED-OLIVE OIL, AND OLIVE-POMACE OIL.....	2
5.0	DEFINITIONS OF TERMS .....	4
6.0	QUALITY AND PURITY PARAMETERS .....	6
	TABLE 1 QUALITY PARAMETERS.....	7
	TABLE 2 PURITY PARAMETERS.....	8
	TABLE 3 FATTY ACID COMPOSITION.....	9
	TABLE 4 STEROL AND TRITERPENE DIALCOHOLS COMPOSITION .....	9
	TABLE 5 TRACE METALS.....	9
7.0	FOOD ADDITIVES .....	10
8.0	CONTAMINANTS.....	10
9.0	METHODS OF ANALYSIS .....	10
10.0	HYGIENE.....	12
11.0	PACKAGING.....	12
12.0	TRACEABILITY .....	14

## 1.0 SCOPE

Pursuant to Chapter 29, Part 2, Division 22 of the California Food and Agricultural Code (section 79800 et seq.) these standards apply to California handlers of olives that are processed into olive oils, refined-olive oils and olive-pomace oils in the amount of 5,000 gallons or more during the period beginning July 1 through June 30 of any year and who sell their oils into the commercial channels of trade. Handlers who process and/or market less than 5,000 gallons of olive oil during any year defined above are deemed to be engaged in casual sales of olive oil and are not subject to these standards.

These standards:

- (a) define grades of olive oils, refined-olive oils and olive-pomace oils;
- (b) specify purity parameters and quality parameters for these grades;
- (c) establishes requirements for labeling and packaging; and
- (d) list acceptable methods of analysis.

## 2.0 OBJECTIVE

The purpose of these standards are to:

- (a) ensure the quality of oil produced from olives in California,
- (b) enhance the continued growth of olive oil production through greater consumer and trade confidence in the consistent, high quality of California olive oils, and
- (c) provide the producers, handlers, buyers and consumers of California oil with reliable and trustworthy information concerning the quality and grade of the product.

## 3.0 PRODUCT DESCRIPTION AND DEFINITIONS

### 3.1 OLIVE OIL

Olive oil is the oil obtained solely from the fruit of the olive tree (*Olea europaea L.*), solely by mechanical or other physical means under conditions, including thermal conditions, that do not lead to alterations in the oil, and which has not undergone any treatment other than washing, crushing, malaxing, decantation, pressing, centrifugation, and filtration and to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

### 3.2 REFINED-OLIVE OIL

Refined-olive oil is oil obtained from olive oil by refining methods including but not limited to; degumming, neutralization, bleaching, and/or deodorization that do not lead to alterations in the initial glyceridic structure (basic glycerin-fatty acid structure) and to the exclusion of oils obtained using solvents or re-esterification processes and of any mixture with oils of other kinds.

### 3.3 OLIVE-POMACE OIL

Olive-pomace oil is the oil obtained by treating olive pomace (the product remaining after the mechanical extraction of olive oil) with solvents or other physical treatments, to the exclusion of oils obtained by synthetic processes or by re-esterification processes and mixture with oils of other kinds.

### 3.4 REFINED OLIVE-POMACE OIL

Refined olive-pomace oil is the oil obtained from crude olive-pomace oil by refining methods including but not limited to; degumming, neutralization, bleaching, and/or deodorization that do not lead to alterations in the initial glyceridic structure (basic glycerin-fatty structure) and to the exclusion of oils obtained by synthetic processes or by re-esterification processes any mixture with oils of other kinds.

## 4.0 GRADES OF OLIVE OIL, REFINED-OLIVE OIL, AND OLIVE-POMACE OIL

### 4.1 GRADES OF OLIVE OIL

Olive oils are graded based on the criteria outlined in these standards, as appropriate. The hierarchy for grades of olive oil is extra virgin olive oil, virgin olive oil, and crude olive oil.

**4.1.1 Extra Virgin Olive Oil** is olive oil that has a free acidity, expressed as free oleic acid, of not more than 0.5 grams per 100 grams, a median of defects equal to 0, and the other characteristics which correspond to the limits fixed for this grade in these standards. Extra Virgin olive oil is fit for consumption without further processing.

**4.1.2 Virgin Olive Oil** is olive oil that has a free acidity, expressed as free oleic acid, of not more than 1.0 grams per 100 grams, a median of defects equal to or less than 2.5, and the other characteristics which correspond to the limits fixed for this grade in these standards. Virgin olive oil is fit for consumption without further processing.

**4.1.3 Crude Olive Oil** is olive oil that has a free acidity, expressed as free oleic acid, of more than 1.0 grams per 100 grams or a median of defects greater than 2.5 and other characteristics which correspond to those fixed for this grade in these standards. Crude olive oil is not fit for human consumption without further processing and is intended to be used for refining or for technical use. **NOTE: These criteria are not required to be concurrent for crude olive oil, one is sufficient.**

## 4.2 GRADES OF REFINED-OLIVE OIL

Refined-olive oils are graded based on the criteria outlined in these standards as appropriate. The hierarchy of grades from highest to lowest is refined-olive oil blend and refined-olive oil. Refined-olive oil blend and refined-olive oil fall below the olive oil category but above the olive-pomace category in terms of hierarchy.

**4.2.1 Refined-Olive Oil Blend Composed of refined-olive oil and virgin (or extra virgin) olive oil** is composed of refined-olive oil and olive oil fit for consumption without further processing. It has a free acidity, expressed as free oleic acid, of not more than 0.8 grams per 100 grams, a median of defects equal to or less than 2.5, and its other characteristics correspond to those fixed for this grade in these standards. Refined-olive oil blend shall not be labeled as “olive oil”. The addition of alpha-tocopherol is permitted.

**4.2.2 Refined-Olive Oil** is oil obtained from olive oil by refining methods including deodorization that do not lead to alterations in the initial glyceridic structure. Refined-olive oils have a free acidity, expressed as free oleic acid, of not more than 0.3 grams per 100 grams, and other characteristics that correspond to those fixed for this grade in these standards.

## 4.3 GRADES OF OLIVE-POMACE OIL

Olive-pomace oils are graded below the quality of olive oil and refined-olive oil. Olive-pomace oils are graded based on the minimum criteria outlined in table 1, as appropriate. The hierarchy for grades from highest to lowest is refined olive-pomace oil blend, refined olive-pomace oil, and crude olive-pomace oil. Crude olive-pomace oil must be refined before consumption. Olive-pomace oils shall not be labeled as “olive oil”. Olive-pomace oils fall below both olive oil and refined olive oil in terms of hierarchy.

**4.3.1 Refined Olive-Pomace Oil Blend Composed of refined olive-pomace oil and virgin (or extra virgin) olive oils** is the oil composed of a blend of refined olive-pomace oil and olive oils fit for consumption without further processing. It has a free acidity, expressed as oleic acid of not more than 0.8 grams per 100 grams, a median of defects equal to or less than 2.5, and its other characteristics correspond to those fixed for this grade in these standards.

**4.3.2 Refined Olive-Pomace Oil** is the oil obtained from crude olive-pomace oil by refining methods that 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 fixed for this grade in these standards.

**4.3.3 Crude Olive-Pomace Oil** is the olive-pomace oil whose characteristics correspond to those fixed in these standards. Olive pomace-oil that falls into this classification shall not be graded above “Crude Olive-Pomace Oil” (this is a limiting rule). It is intended for refining for use for human consumption or for purposes other than food use.

## 5.0 DEFINITIONS OF TERMS

For the purpose of these standards the following definitions apply.

- 5.1 Absorbency in Ultraviolet (UV).** Spectrophotometric test which examines the oil and measures the absorption under ultraviolet light. These absorptions are expressed as K (extinction coefficient) for the specified wavelength. The wave regions examined, 232 nanometers (nm) to calculate K<sub>232</sub> and 270 nm to calculate K<sub>270</sub> and 264-274 to calculate delta K ( $\Delta K$ ). This test provides information on the quality of the oil, state of preservation, and changes brought through processing.
- 5.2 Apparent  $\beta$ -sitosterol.** The sum of the concentrations of  $\beta$ -sitosterol,  $\Delta$ -5avenasterol,  $\Delta$ -5,23-stigmastadienol,  $\Delta$ -5,24-stigmastadienol, clerosterol, and sitostanol.
- 5.3 Aroma.** A volatilized chemical compound that is perceived by olfaction.
- 5.4 Cold pressed.** Olive oil obtained by pressing crushed olives with a mechanical, hydraulic, or centrifugal press at a temperatures that does not lead to significant thermal alterations.
- 5.5 Cold extracted.** Olive oil obtained by separating the oil by any mechanical or other physical means at a temperature that does not lead to significant thermal alterations.
- 5.6 Desmethylsterol Composition.** A test used to indicate the origin and purity of the Oil, reported as Total Sterols.
- 5.7 Diacylglycerol (DAG).** A glyceride consisting of two fatty acids chains covalently bonded to a glycerol molecule through ester linkages. In mechanically extracted olive oils, DAGs are present in a range of 1% to 3% and they are found as 1,2- and 1,3- isomers.
- 5.8 Equivalent Carbon Number 42 (ECN 42).** The determination of the difference between the actual Equivalent Carbon Number triacylglycerol content of the oil molecules determined by High Performance Liquid Chromatography (HPLC) and the theoretical amount of ECN 42 triacylglycerol using fatty acid composition. It is used for the detection of seed oils and verifies authenticity and origin of oils.
- 5.9 Erythrodiol and Uvaol.** Two triterpene dialcohol components found in olive oil and olive-pomace oil. The levels present differentiate oils that were physically extracted from oils that were produced by solvent extraction.
- 5.10 First extraction.** First mechanical process to separate the oil from the olive paste by centrifugation, decantation, or pressing. This does not include the second mechanical extraction or solvent extraction used to chemically separate the oil remaining in the pomace.
- 5.11 Flavor.** The sensory impression of oil, determined mainly by the senses of taste and smell. Refers to the typical flavor of olive oil produced from olives and the degree of positive or negative attributes as listed in sections 5.17-5.23.

- 5.12 Free fatty acid content/free acidity.** Expressed as a percentage by weight of grams per 100 grams, as free oleic acid. The free fatty acid is a measure of the quality of the oil, and reflects the care taken in producing the oil and the quality of the in-coming fruit.
- 5.13 Handler.** A “Handler” is a person who engages, in this state, in the operation of marketing olive oil that he or she has produced, or purchased or acquired from an olive producer, or that he or she is marketing on behalf of an olive producer, whether as an owner, agent, employee, broker, or otherwise.
- 5.14 Initial glyceridic structure.** The pattern of mono-, di-, and tri-glycerides present in olive oils or crude olive-pomace oils as extracted prior to any refining process.
- 5.15 Lot.** A lot is a quantity of oil contained in one or more vessels that is declared by the handler to have uniform characteristics and that is marked in accordance with section 11.3.8 of these standards.
- 5.16 Malaxing.** Malaxing is the mechanical mixing of the olive paste after crushing of the olives. Malaxing serves to break down emulsions and cell walls in order to facilitate the extraction of the oil.
- 5.17 Median of defects. (Md).** A calculation of the median score of the oils negative flavor and aroma attributes according to the method in section 9.12 or an equivalent method according to section 9.1.
- 5.18 Median of defects-Fusty.** A flavor defect attributable to poor storage conditions usually promoting the bacterial growth of the *Clostridium* and *Pseudomonas* genera.
- 5.19 Median of defects-Muddy-sediment.** A flavor defect caused by the storage of olives in contact with oil sediment for long periods of time giving the oil a putrid flavor and aroma. The resulting oil has moldy aroma.
- 5.20 Median of defects-Musty.** A flavor defect occurring when low temperatures and high humidity promote mold growth, mainly of the *Aspergillus* and *Penicilium* genera.
- 5.21 Median of defects-Rancid.** A flavor defect caused by the oxidation of the oil and subsequent formation of aldehydes during the production process or during storage giving the oil an oxidized flavor and aroma.
- 5.22 Median of defects-Winey-vinegary.** A flavor defect caused by storage condition of the olives that causes aerobic fermentation by the growth of yeasts that produce ethanol, acetic acid, and ethyl acetate.
- 5.23 Median of Fruity (Mf).** A calculation of the median score of the intensity of the positive fruity characteristics of the oil according to the method in section 9.12 or an equivalent method according to section 9.1.
- 5.24 Monopalmitate (2-Glyceryl) content determination.** A test used to determine if oil has been re-esterified by synthetic means or by the addition of animal fat.

- 5.25 Organoleptic analysis.** An analysis based on flavor and aroma characteristics.
- 5.26 Peroxide value.** A measure of the oxidation of oil expressed as milliequivalents of active oxygen per kilogram of oil.
- 5.27 Pressing.** An oil extraction method consisting of pressing the malaxed paste utilizing a hydraulic or centrifugal press.
- 5.28 Producer.** A “Producer” is any person that produces or causes to be produced olives that are processed into olive oil in the amount of 5,000 gallons or more during the marketing season and that shall upon request of the commission provide proof of commodity sale.
- 5.29 Pyropheophytin a.** A degradation product of Chlorophyll a that results from the thermal or age related degradation of the oil.
- 5.30 Refining.** A process in which oil undergoes treatment using but not limited to the following, heat (typically stripping steam) or chemicals (typically caustic soda or sodium carbonate) in combination with heat. Soft Column refining, also sometimes known as deodorization, is a type of refining using lower temperatures under vacuum often used to neutralize flavor and aroma.
- 5.31 Shelf Life.** A date on the container that signifies the end of the period during which the intact package of oil, if stored in accordance with stated storage conditions, will retain any specified qualities for which express or implied claims have been made. Terminology used on packaging can appear as “Best Before”, “Best By”, “Best if Used By”, etc.
- 5.32 Sterols.** A subgroup of steroids with a hydroxyl group at the 3-position of the A-ring. Sterols comprise one of many minor constituents of oils that are characteristic indicators of impurity.
- 5.33 Trans fatty acid.** A group of compounds consisting of all the geometrical isomers of monounsaturated and polyunsaturated fatty acids having one or more non-conjugated carbon-carbon double bond in the trans configuration interrupted by at least one methylene group. As they are not present in olive oil in its natural state their presence indicates if processing such as deodorization or de-coloring has taken place.
- 5.34 Triglyceride.** A major component of oil comprised of an ester of three fatty acids and glycerol, also known as triacylglycerol.
- 5.35 Wax content.** A minor component of olive oil that is found in the skin of the olive fruit.

## 6.0 QUALITY AND PURITY PARAMETERS

- 6.1** The quality parameters and limits for grades of olive oil, refined-olive oil, and olive-pomace oil shall be as set out in Table 1.
- 6.2** The purity parameters of olive oils, refined-olive oils, and olive-pomace oils shall be set out in Tables 2-5.
- 6.3** The limits established for each parameter take account of the precision values of the respective recommended methods of determination specified in section 9.



CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

Grade and Labeling Standards for Olive Oil, Refined-Olive Oil and Olive-Pomace Oil

**TABLE 1**  
**QUALITY PARAMETERS**

Parameter	OLIVE OIL			REFINED-OLIVE OIL		OLIVE-POMACE OIL		
	Extra Virgin olive oil	Virgin olive oil	Crude olive oil <sup>1</sup>	Refined olive oil blend	Refined olive oil	Refined olive pomace oil blend	Refined olive pomace oil	Crude olive pomace oil
Free Fatty Acid Content (%m/m)	≤0.5	≤1.0	>1.0	≤0.8	≤0.3	≤0.8	≤0.3	N/A
Peroxide Value (PV) (meq O <sub>2</sub> /kg oil)	≤15.0	≤20.0	>20.0	≤15.0	≤5.0	≤15.0	≤5.0	N/A
Absorbency in ultraviolet K <sub>232</sub>	≤2.40	≤2.60	>2.60	N/A	N/A	N/A	N/A	N/A
Absorbency in ultraviolet K <sub>270</sub>	≤0.22	≤0.25	>0.25	≤0.90	≤1.10	≤1.70	≤2.00	N/A
Absorbency in ultraviolet Delta K	≤/0.01/	≤/0.01/	≤/0.01/	≤/0.15/	≤/0.16/	≤/0.18/	≤/0.20/	N/A
Moisture and volatile matter (MOI)(%m/m)	≤0.2	≤0.2	≤0.3	≤0.1	≤0.1	≤0.1	≤0.1	≤1.5
Insoluble impurities (INI) (%m/m)	≤0.1	≤0.1	≤0.2	≤0.1	≤0.1	≤0.1	≤0.1	N/A
Pyropheophytin a (PPPs) (%)	≤17	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2 Diacylglycerols (DAGs) (%)	≥35	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organoleptic Analysis Median of Defects(MeD)	=0.0	0.0<MeD≤2.5	>2.5	≤2.5	≤2.5	≤2.5	≤2.5	N/A
Organoleptic Analysis Median of Fruity(MeF)	>0.0	>0.0	N/A	>0.0	N/A	>0.0	N/A	N/A

<sup>1</sup> Note: These criteria are not required to be concurrent for crude olive oil, one is sufficient.

**TABLE 2**  
**PURITY PARAMETERS**

Parameter	OLIVE OIL			REFINED-OLIVE OIL		OLIVE-POMACE-OIL		
	Extra Virgin olive oil	Virgin olive oil	Crude olive oil	Refined olive oil blend	Refined olive oil	Refined olive pomace oil blend	Refined olive pomace oil	Crude olive pomace oil
Total sterol Content (mg/kg)				≥1000	≥1000	≥1600	≥1800	≥2500
Wax Content (C40+C42+C44+C46)(mg/kg)	≤250	≤250	≤300 <sup>1</sup>	≤350	≤350	>350	>350	>350 <sup>2</sup>
Trans fatty acid content (C 18:1 T %) (% trans fatty acids)	≤0.05	≤0.05	≤0.10	≤0.20	≤0.20	≤0.40	≤0.40	≤0.20
Trans fatty acid content (C 18:2 T % +C 18:3 T %) (% trans fatty acids)	≤0.05	≤0.05	≤0.10	≤0.30	≤0.30	≤0.35	≤0.35	≤0.10
Maximum difference between the actual and theoretical ENC 42 triacylglycerol content	≤/0.2/	≤/0.2/	≤/0.3/	≤/0.3/	≤/0.3/	≤/0.5/	≤/0.5/	≤/0.6/
Stigmastadienes content (mg/kg)	≤0.10	≤0.10	≤0.50	N/A	N/A	N/A	N/A	N/A
Content of 2-glyceryl monopalmitate (%)				≤1.8	≤1.8			

<sup>1</sup> When the oil has wax content between 300mg/kg and 350mg/kg, it is considered a crude olive oil if the erythrodiol + uvaol content is ≤3.5% and the total aliphatic alcohol content is ≤350mg/kg.

<sup>2</sup> When the oil has a wax content between 300mg/kg and 350mg/kg, it is considered a crude olive-pomace oil if the erythrodiol + uvaol is >3.5% and the total aliphatic alcohol content is >350mg/kg.

**TABLE 3**

<b>FATTY ACID COMPOSITION</b> (Expressed as % m/m Methyl Esters)		
Myristic acid	(C 14:0)	≤0.05
Heptadecanoic acid	(C17:0)	≤0.3
Stearic acid	(C 18:0)	0.5-5.0
Arachidic acid	(C20:0)	≤0.6
Behenic acid	(C22:0)	≤0.2 <sup>1</sup>
Lignoceric acid	(C24:0)	≤0.2

<sup>1</sup>≤ 0.3 for olive-pomace oils

**TABLE 4**

<b>STEROL AND TRITERPENE DIALCOHOLS COMPOSITION</b> (Expressed as % of Total Sterols)	
Brassicasterol	≤0.1
Stigmasterol	≤1.9

**TABLE 5**

<b>TRACE METALS</b> (Expressed as mg/kg)	
Iron (Fe)	≤3.0
Copper (Cu)	≤0.1

## 7.0 FOOD ADDITIVES

- 7.1 Olive oils and crude olive-pomace oil.** Olive oils and crude-olive pomace oils shall not contain food additives.
- 7.2 Refined-olive oils, olive-pomace oil and refined olive pomace oil.** Tocopherols may be added to refined-olive oil, olive-pomace oil and refined olive-pomace oil to restore the natural tocopherols lost in the refining process up to a maximum level of 200mg/kg of total alpha-tocopherol in the final product. Use of tocopherols shall be in compliance with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B Part 170, Part 178, and Part 182 (*Food Additives, Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers, and Substances Generally Recognized as Safe (GRAS)*).
- 7.3 Processing aids.** Processing aids are allowed to be used during oil extraction to the extent allowed by the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B Part 178 (*Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers*).

## 8.0 CONTAMINANTS

- 8.1 Halogenated Solvents.** The maximum permissible content for refined olive-pomace oil of each halogenated solvent is 0.1 mg/kg. The maximum permissible content of all halogenated solvents is 0.2mg/kg.
- 8.2 Pesticide Residues.** The products covered by these standards shall comply with the maximum residual level (MRL) limits established by the U.S Environmental Protection Agency (EPA) 40 C.F.R Sub Chapter E Parts 150 to 180 (*Pesticide Programs*).

## 9.0 METHODS OF ANALYSIS

### 9.1 General

The following methods shall be used to determine the characteristics of the olive oil, refined olive oils, and olive pomace oils. Alternative methods may be used provided they have been recognized as official methods IOC, AOCS, ISO (International Organization for Standardization), or Codex Alimentarius and shown to give equivalent results. At all times the most recently published version of the listed method or their alternatives shall be used.

- 9.2 Sampling.** According to the ISO standard 5555:2001 and Appendix A.
- 9.3 Preparation of the test sample.** According to ISO 661 “Animal and vegetable fats and oils-Preparation of the test sample”.
- 9.4 Determination of the fatty acid composition.** Preparation of methyl esters in accordance with AOCS Ce 2-66 or ISO 5509 or COI/T.20/Doc.24. Methyl esters of fatty acids shall be analyzed by gas chromatography in accordance with ISO 5508 or AOCS Ch 2-91.

- 9.5 Determination of the trans fatty acid content.** According to AOCS Ch 2a-94 (Rev. 2002) or ISO 15304 or COI/T.20/Doc.17.Rev.1.
- 9.6 Determination of the sterol composition and total sterol content.** Sterol composition and total sterol content shall be determined in accordance with ISO 12228 or COI/T.20/Doc.10.Rev.1 or AOCS Ch 6-91.
- 9.7 Determination of the content of erythrodiol + uvaol.** Erythrodiol + uvaol content shall be determined in accordance with IUPAC no. 2.431; capillary columns are recommended or IOC/T.20/Doc. 30.
- 9.8 Determination of wax content.** According to COI /T.20/Doc.18.Rev.2 or AOCS Ch 8-02 (Rev.2007).
- 9.9 Determination of the stigmastadienes content.** Stigmastadienes shall be determined in accordance with AOCS Cd 26-96 or COI /T.20/Doc.11.Rev.2.
- 9.10 Determination of the content of 2-glyceryl monopalmitate.** According to COI /T.20/Doc.23.
- 9.11 Determination of the difference between the actual and theoretical ECN 42 triglyceride content.** The difference between the actual and theoretical ECN 42 triglyceride content shall be determined in accordance with AOCS Ce 5b-89 or COI /T.20/Doc.20.Rev.3.
- 9.12 Determination of organoleptic characteristics.** Organoleptic characteristics shall be determined in accordance with COI/T.20/Doc. 15.Rev.2.
- 9.13 Determination of free fatty acid content.** Free fatty acid content shall be determined in accordance with ISO 660 or AOCS Ca 5a-40.
- 9.14 Determination of the peroxide value.** Peroxide value shall be determined in accordance with AOCS Cd 8b-90 or ISO 3960.
- 9.15 Determination of absorbency in ultraviolet.** Absorbency in ultraviolet shall be determined in accordance with ISO 3656 or AOCS Ch 5-91 or COI/T.20/Doc.19.Rev.2.
- 9.16 Determination of moisture and volatile matter.** Moisture and volatile matter shall be determined in accordance with ISO 662 or AOCS Ca 2c-25.
- 9.17 Determination of insoluble impurities in light petroleum.** Insoluble impurities shall be determined in accordance with ISO 663 or AOCS Ca 3a-46.
- 9.18 Determination of trace metals.** Determination of copper and iron by direct graphite furnace atomic absorption spectrometry shall be in accordance with ISO 8294.13
- 9.19 Determination of alpha-tocopherol.** Tocopherols and tocotrienols contents, using high-performance liquid chromatography, shall be determined in accordance with ISO 9936.
- 9.20 Determination of pyropheophytins.** The degradation products of chlorophylls a and a' (pheophytins a, a' and pyropheophytins) shall be determined in accordance with ISO 29841.

**9.21 Determination of 1,2-Diacylglycerol content.** Relative amounts of 1,2- and 1,3-diacylglycerols shall be determined in accordance with ISO 29822.

## 10.0 HYGIENE

**10.1** Products covered by these standards shall be prepared and handled in accordance with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B and E Parts 110 and 589 (*Current Good Manufacturing Practices in Manufacturing, Packaging, or Holding of human food*).

## 11.0 PACKAGING

**11.1 General.** Olive oils, refined-olive oils, and olive-pomace oils intended for trade should be packaged in containers complying with the *General Principles of Food Hygiene* by the Codex Alimentarius Commission (CAC/RCP 1) and shall comply with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter B and E Parts 110 and 589 (*Current Good Manufacturing Practices in Manufacturing, Packaging, or Holding of human food*).

**11.2 Packaging materials.** Only packaging materials fit for the intended use, selected to minimize the deterioration of oil quality, and selected to ensure continued compliance with the grade of the oil of the shall be used.

### 11.3 Labeling

**11.3.1 General.** In addition to the requirements set out herein handlers of olive oils, refined-olive oils and olive-pomace oils shall comply with the Food and Drug Administration (FDA) 21 C.F.R. Sub Chapter A, B, D, E, F, G Part 101 (*Food Labeling*).

**11.3.2 Product name.** The labeling on each container shall indicate the specific grade of the product as specified and determined by these standards in section 4. The designations shall be prominent and clearly legible in the principal display panel of the label. The following are the only grade designations permitted:

- (a) Extra Virgin Olive Oil
- (b) Virgin Olive Oil
- (c) Crude Olive Oil\*
- (d) Refined-Olive Oil Blend composed of refined-olive oil and virgin (or extra virgin) olive oils
- (e) Refined-Olive Oil
- (f) Refined Olive Pomace-Oil Blend composed of refined olive-pomace oil and virgin (or extra virgin) olive oils
- (g) Refined Olive Pomace-Oil\*
- (h) Crude Olive Pomace-Oil\*

\*Note: Grades for trade only, not fit for consumption without further processing.

- 11.3.3 Prohibited Terminology.** Indications shown on the labeling shall not mislead the purchaser as to the characteristics of the oil contained therein by attributing to it characteristics that it does not possess. Examples of designations prohibited but not limited to; “Pure”, “Pure Olive Oil”, “Lite”, “Lite Olive Oil”, “Light”, “Light Olive Oil”, “Extra Light”, “Extra Light Olive Oil” “Extra Lite” or “Extra Lite Olive Oil”, “Super Virgin” shall not be used.
- 11.3.4 Provenance.**
- (a) 100% of the oil must be from olives grown in the state of California.
  - (b) If reference is made to a specific region in California, then at least 85% of the oil (by weight) must be from olives grown in that region.
  - (c) If reference is made to a specific estate within California, then at least 95% of the oil (by weight) must be from olives grown on that estate.
- 11.3.5 Varietal Names.** If olive varietal names are used on the label, then varieties comprising 85% of the oil by weight must be listed in their order of dominance.
- 11.3.6 Year of Harvest.** If reference is made to a harvest date, then 100% of the olives used to make the oil must have been harvested during that time period. Because the harvest typically runs from October through January, the dating refers to it by the calendar year; for example the 2014-2015 harvest season is deemed to be the 2015 harvest. When oils from multiple years are combined and the year of harvest is indicated the label must indicate each of the harvest years contained therein. If the month and year of harvest are indicated then 100% of the oil must be from that period. If the season and year are indicated then 100% of the oil must be from that period.
- 11.3.8<sup>1</sup> Lot identification.** Each container shall be permanently marked to identify the producing factory and the lot in accordance with the relevant US and California codes. Every lot must include a date of manufacture; in either closed or open format.
- 11.3.9 Shelf Life and Harvest Date.** Declaration of a best-before date is optional, if used must be supported by technical evidence. The Shelf Life can be displayed as but not limited to: “Best Before”, “Best if Use By”, “Best By”. If a shelf life is declared the label shall include storage conditions necessary to ensure the validity of that date. In no case however, shall a best before date greater than two years from the date of the packaging be used. A harvest date may also be included on the label.
- 11.3.10 First Cold Pressing/ Cold Extraction.** The indication “First Cold Pressing” “Cold pressing”, “Cold extraction”, “Cold Crushed”, or similar language may be used only for “Extra Virgin Olive Oil” or “Virgin Olive Oil” extracted by mechanical means that do not lead to significant thermal alterations in the oil.

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<sup>1</sup> Section 11.3.7 was not implemented

## **12.0 TRACEABILITY**

- 12.1** All containers of oil shall be clearly labeled as to their contents and be identified by a lot number. The lot number shall provide the ability for the handler to identify the following:
  - 12.1.1** The location including the address, county and assessor's parcel number(s) of the land where the olives were grown.
  - 12.1.2** The pesticide records for that location.
  - 12.1.3** The name of any harvesting company used in harvesting the olives
  - 12.1.4** The name of the transportation company that transported the olives
  - 12.1.5** Total quantity by weight of olives delivered to the mill for processing.
  - 12.1.6** Applicable processing and quality records.
  - 12.1.7** Total quantity of oil by weight or volume produced from the tonnage as stated in section 12.1.5.
  - 12.1.8** Final lot numbers identified on the goods that were sold.
- 12.2** Product traceability documents and identification records shall be maintained and available for review. All records shall be maintained for a minimum of 3 years.
- 12.3** All traceability, documentation, verification, and validations shall be in accordance with 21 C.F.R Part 120 (*Hazard Analysis and Critical Control Point (HACCP) Systems*).
- 12.4** In the event that purity testing results are in the ranges footnoted in tables 2 and 4, the handler shall provide the documents identified in section 12.1 to the commission for review.