



United States
Department of
Agriculture

Marketing and
Regulatory
Programs

Agricultural
Marketing
Service

Fruit and
Vegetable
Program

Processed
Products
Division

Grading Manual for Olive Oil and Olive-Pomace Oil

Effective May 2012

This manual is designed for Processed Products Division personnel of the U.S. Department of Agriculture. Its purpose is to give background information and guidelines to assist in the uniform application and interpretation of U.S. grade standards, other similar specifications, and special procedures.

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I. PURPOSE AND SCOPE

- A. The instructions contained in this manual furnish technical information that will be a guide in the inspection of olive oil and olive-pomace oil, and will allow inspectors to attain uniformity in applying grade standards and certifying product.
- B. This manual also serves to familiarize inspectors with the general methods followed by the industry in the production of olive oil and olive-pomace oil.

II. PRODUCTION

A. Annual Pack

- 1. The olive plant (*Olea europaea, L.*) is distributed throughout the Mediterranean countries.
- 2. Olive oil production in California represents less than 2 percent of United States consumption.
- 3. Most of the olive oil in the U.S. is imported from Spain, Greece, Italy, Turkey, Tunisia, Morocco, Australia, Chile, and Argentina.
- 4. Olives are harvested from October to May depending on the climate and variety.
- 5. In California, harvesting occurs from late October to December.
- 6. Olive harvesting practices contribute to the quality and cost of virgin olive oil.
- 7. Olives picked in the early part of the season tend to develop olive oil that is bitter and pungent with a bright green color. This is due to the naturally occurring polyphenols found in the olives.
- 8. When olives are picked later in the season, the olive oil tends to have a ripe flavor and sweet taste.
- 9. Quality extra virgin olive oil is developed from wholesome olives picked from the tree, not the ground, and delivered to the mill quickly before the olives spoil.

10. Olives are usually picked by hand using a rake or mechanically by shaker machines that help detach the olives from the branch and dropped into nets.
11. Olives are also picked from the ground using manual tools. Usually a skirt is placed around the bottom of the tree to protect the olives from contamination.

B. Processing

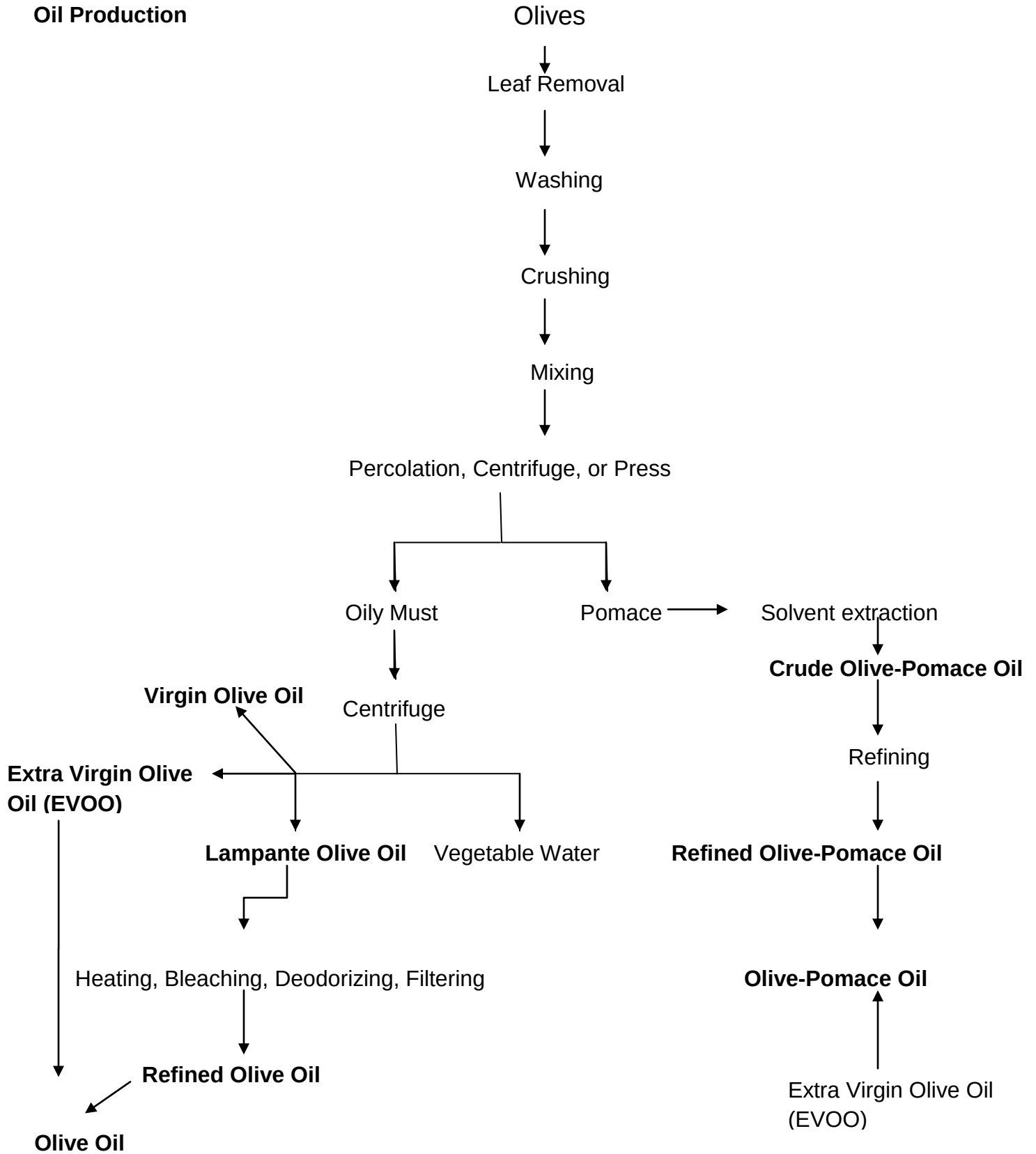
1. Olives are transported to the mill in plastic cases or by truck.
2. The olives must be processed quickly or stored in a cool airy protected area.
3. If the olives are not ripe, storage can occur for up to three days without risk to the resulting quality.
4. Once transported to the mill, leaf removal and washing of the olives occurs to remove foreign material.
5. Additionally, the machinery can be equipped with magnets to remove metal objects.
6. Olives may be ground with a metal crusher in the continuous centrifuge decanter method.
7. Older systems employ pressing systems and millstones to carry out the extraction of olive oil, hence the term “first press.”
8. The presence of leaves will intensify the “green” taste that can be distasteful to consumers.
9. The mechanical extraction of olive oil entails crushing the olives into a paste.
10. The majority of the oil is released from the mesocarp of the fruit itself. The remainder is lost to the pomace.
11. After crushing the olives into a paste, the olive paste must be mixed by stirring and then pressed, centrifuged, or percolated.
12. The mixing process consists of slow and continuous stirring to increase the “free oil.”

13. Olive oil percolation involves the inserting of steel blades to loosen the mix of fruit and oil and water.
14. This method is often used in combination with decanting the oil as this process causes the oil to float to the top of the paste.
15. Heat is not used during this phase of virgin olive oil extraction (i.e., “Cold pressed”).
16. Extracting oils from olives that have been damaged from disease or decay results in lampante oil.
17. The flavor of this oil is unpalatable and must be refined.
18. The refining process involves heating, neutralizing, bleaching, and deodorizing the lampante olive oil in order to remove the off flavors.
19. The resulting refined olive oil is then blended with a small amount of extra virgin olive oil and sold as olive oil or “pure” olive oil.
20. The term “light” olive oil only refers to the flavor and is determined by the amount of extra virgin olive oil added to the refined olive oil.
21. Pomace and vegetable water are by-products of the olive mills.
22. Pomace is sold to industrial factories where the residual oil is extracted using hexane or other solvents.
23. The extracted oil (Crude olive-pomace oil) is then refined so that it is edible (Refined olive-pomace oil).
24. The resulting product, sold as olive-pomace oil is blended with a small amount (5% or more) of extra virgin olive oil.
25. The pomace solids remaining after solvent extraction can be used for fuel, feed, or fertilizer.
26. Vegetable water is expensive to dispose of except by using it on agricultural land. It has no other agricultural uses.

C. Storage

1. After production, the olive oil is stored in stainless steel tanks, drums, gallon pails, or other non-corrosive containers.
2. The olive oil is protected from oxidation, moisture, and contamination of any kind.
3. Spoilage at this point, often occurs by taint from metal surfaces not compatible with the oil such as tin cans. Glass is usually more suitable.
4. A small amount of sediment from the crushed olives and vegetable water often forms at the bottom of containers of virgin olive oil.
5. This vegetable water can ferment and cause a defect in flavor, i.e., muddy or putrid.
6. To avoid this, virgin olive oil is separated from the sediment by pouring off or filtering. This is called racking.
7. Oxidative deterioration occurs due to exposure to light, air, high temperatures (above 30 degrees Centigrade, 92 degrees F), and contact with metals, such as copper or iron.
8. Oxidative deterioration can be avoided by filling containers to the rim, hermetically sealing the containers, and storing containers in a cool, dark place.
9. The product can be stored for up to two years at low temperatures, optimally, between 15 and 20 degrees C, and protected with nitrogen to limit oxidative deterioration.

**Olive Oil and Olive-Pomace
Oil Production**



III. INSPECTION AND GRADING OF OLIVE OIL AND OLIVE-POMACE OIL

A. Inspection Instructions

Follow the general procedures and instructions as outlined in the AIM Instruction Manuals and United States Standards for Grades:

[United States Standards for Grades of Olive Oil and Olive-Pomace Oil](#)

Title 7, Code of Federal Regulations ([CFR](#)), [7 CFR part 52](#)

[Sampling Procedures](#)

(Compositing Samples for Chemical Analysis)

(Determining Product Compliance with Analytical Testing Requirements)

[U.S. Standards for Condition of Food Containers](#)

[Technical Procedures](#)

(Net Weights and Net Contents)

(Acid Titration and Analytical Procedures)

[General Procedures](#)

B. Sampling

1. If sampling individual containers use [Sampling Procedures](#), Table 3.
2. If sampling bulk containers from 5 gallons to 275 gallons:
 - a. The product is sampled according to [Sampling Procedures](#), Table 3.
 - b. Use the following conversion factors to calculate the poundage and then use Group 4.
 - c. The density of olive oil at 20 degrees Celsius is 7.6 pounds per U.S. gallon.
 - d. Pounds of olive oil = factor x gallons of olive oil

Example:

2000 gal. x 7.6 lbs./gal. = 15,200 pounds

Lot sample = 6 samples at 500 ml each.

- e. Assure that the product is homogeneous.
 - f. Assure that the temperature of the product is between 15 and 20 degrees C.
 - g. Use a sanitized plastic tube or trier that has been properly sterilized and long enough to reach the bottom of the barrel to pull samples.
 - h. If possible, take at least three increments to make a composite - (one from top, one from middle, and one from bottom) for each sample drawn.
 - i. Place each sample in a sterilized plastic sample bottle (500 ml).
3. If the product is in bulk containers and is being sampled during transfer:
- a. Use the above conversion factors, Item 2.c, to calculate the poundage and then use Group 4 to determine the sampling rate.
 - b. Samples can be pulled at intervals by means of an approved automatic sampler. A minimum of three samples would be pulled per tank.
4. If product is in bulk containers greater than 275 gallons (i.e., stainless steel tanks); is not being transferred; and there is only one inlet:
- a. Assure that the product is homogeneous. (Nitrogen can be pumped through to assure uniformity.) If it is not, make a note of it on the sampling sheet.
 - b. Assure that the temperature of the product is between 15 and 20 degrees C. If it is not, make a note of it on the sampling sheet.

- c. Pull one sample (500 ml) per tank. Remember to pull back up samples for the AMS laboratory. See item 5.b below.
5. An additional two sets of samples are drawn and sent to the AMS, Science and Technology (S&T) Laboratory in Blakeley, Georgia. One set for the analytical requirements and one for the flavor panel.
- a. After the sampling rate is established;
 - b. Draw additional sets of samples at one plus the deviant rate according to [Sampling Procedures](#). Save a set of samples for backup.
 - c. Complete a Laboratory Submittal Sheet, Form FV-637 (See Appendix I). See Table I of the grade standards for the minimum tests performed for each lot of olive oil or olive-pomace oil. Indicate on the form that individual samples are to be evaluated for tests (1) through (4) below, and that individual samples are to be composited into a single sample by the laboratory for tests (5) through (9) below.
 - (1) Determination of the organoleptic characteristics for Virgin Olive Oil. (Flavor Panel Review by S&T);
 - (2) Determination of free fatty acidity (as oleic acid)
 - (3) Determination of peroxide value;
 - (4) Determination of absorbency in ultraviolet (UV);
 - (5) Determination of the fatty acid composition;
 - (6) Trans fatty acid;
 - (7) Desmethylsterol composition (Percent Total Sterol);
 - (8) Total sterol content; and
 - (9) Stigmastadiene content.
 - d. Refined olive oil, olive oil, and all olive pomace-oil **do not require a flavor panel review by the laboratory.**
 - e. The minimum individual sample size is 500 ml. The laboratory requires a duplicate sample for the flavor panel. Send two sets per sample to the following address:

Laboratory Supervisor
USDA, AMS, Science and Technology Programs (S&T)
Science Specialty Laboratories
6567 Chancey Mill Road
Blakely, GA 39823-2785
Phone: (229) 723-4570, Fax: (229) 723-7251

The laboratory will test the organoleptic characteristics (via flavor panel), peroxide value, free acidity, and absorbency in UV individually and composite the sample for the remainder of the tests.

NOTE: Please assure that samples are thoroughly secured with bubble wrap and tape to avoid breakage. Ship samples via UPS, FEDEX, or other overnight carrier. The use of tamper proof tape is recommended for shipping cases.

C. Equipment for Inspection

The following list comprises the minimum equipment needed for the inspection of olive oil and olive-pomace oil.

1. A sanitized plastic tube or trier that has been properly sterilized and long enough to reach the bottom of the barrel to pull samples
2. Measuring flasks (various)
3. Trays-white
4. Glass cylinders (10 ml, 100 ml)
5. Headspace gauge
6. 250 ml Erlenmeyer flasks
7. 25 ml glass volumetric cylinder (for determining density of the oil)
8. Stirring rods
9. Magnetic stirrer and stirring bar
10. Phenolphthalein indicator (1 percent in 95 percent alcohol)
11. 0.1N NaOH
12. 2-propanol (Isopropyl alcohol (95% U.S.P.))¹
13. 10 ml Burette

¹ Alternately, 99 percent isopropanol (2-propanol) may be used as the solvent.

14. Digital Scale
15. Cups or spoons for flavoring the olive oil.
16. Heating pad or water bath (for heating the virgin olive oil to standard temperature of 28 degrees C. before flavoring.) (optional)
17. Shipping containers
18. Bubble wrap
19. Tape
20. [Form FV-637](#), laboratory submittal sheet
21. [Scoresheet](#), FV 364-39
22. 10 ml pipette or dropper
23. Fresh apple slices and water- for cleansing the palette between samples
24. Thermometer for verifying temperature (optional)

D. Net Contents

1. Follow the instructions in the AIM inspection manual [Technical Procedures](#) to determine the net contents or use an appropriate measuring flask.
2. To determine density of the oil (specific gravity), tare a 25 ml glass volumetric cylinder and fill with oil to 25 ml. Weigh the filled cylinder in grams and multiply the amount of grams by 0.04 to get the specific gravity of the oil (grams/ml). Use the specific gravity to the fourth decimal place, (i.e., 0.0001), that you have determined in the formula in item 5, below.
3. Color can be determined at this time if using a measuring flask.
4. Olive oil usually is found in the following sizes for retail purchase: 5.0 oz. (148 ml), 250 ml (8.45 oz.), 350 ml (11.8 oz.), 375 ml (12.7 oz.), and 750 ml (25.4oz.).

5. Convert net weights to fluid ounces. To convert to fluid ounces, use the following formula:

$$\text{Fill (fl. oz.)} = \frac{\text{net weight (avoir. oz)} \times 0.9614}{\text{Specific Gravity @ 20 degrees C.}}$$

In general, the accepted industry standard for the specific gravity of olive oil and olive-pomace oil @ 20 degrees C is 0.9143, although the actual specific gravity can vary between 0.80-0.92. See item 2 above in order to determine the exact specific gravity.

E. Vacuum

Vacuum measurements are not required for this product.

F. Free Fatty Acid

1. Determine the free fatty acid (FFA) (as oleic) for each sample as follows:

Reagents

- 250 ml Erlenmeyer flask
- 0.1N Sodium Hydroxide
- Neutralized alcohol (Preparation)
 - Measure 50 mls of 2-propanol (isopropyl alcohol) in a 250 ml flask. Add two drops of oil and 2 ml phenolphthalein indicator solution.
 - Swirl.
 - Add drop by drop 0.1N NaOH to produce a permanent pink color.

Procedure

- Tare the flask containing the neutralized alcohol on a digital scale.

- Add 56.4 grams of oil into the flask containing the neutralized alcohol. *Tip: Pour oil slowly to about 50 grams then use a dropper to add the rest of the oil to obtain an accurate measure.*
- Titrate with 0.1N NaOH swirling by hand or with a magnetic stirrer until sample reaches a faint pink end point.

2. Calculate

- (1 ml of 0.1N NaOH = 0.0282 grams of oleic acid)
- Number of mls of NaOH \times 0.05 = percent free fatty acid (as Oleic acid)

G. Ascertain Flavor And Odor

1. Inspectors will perform a flavor and odor evaluation on every sample except crude olive-pomace oil.
2. For Extra Virgin and Virgin Olive Oil:
 - a. Do not use strong scented cologne or other cosmetics that could interfere with flavor or odor perception.
 - b. Do not smoke or eat up to one hour before flavoring the oil.
 - c. The virgin olive oil can be warmed to a temperature of 28 degrees C. on a heating pad or in a water bath before flavoring. (Optional)
 - d. Pour about 15 ml (0.5 ounce) of oil from each sample into a corresponding cup or spoon. (This applies only to Extra Virgin Olive Oil, Virgin Olive Oil, and Lampante labeled oils).

- e. Refer to the reference samples sent to each office, if available. Defective flavor descriptors are shown below.

Musty	A flavor defect occurring when low temperatures and high humidity promote mold growth, mainly of the <i>Aspergillus</i> and <i>Penicillium</i> genera. The resulting oil has a mushroom-like odor.
Fusty	A flavor defect attributable to poor storage conditions of the olives, usually promoting the bacterial growth of the <i>Clostridium</i> and <i>Pseudomonas</i> genera.
Rancid	A flavor defect caused by the oxidation of the oil and subsequent formation of aldehydes during the production process giving the oil a varnish, paint, or seed-like flavor and odor.
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.
Muddy-sediment	A flavor defect caused by storage of olive oil in contact with the sediment for long periods giving the oil a putrid flavor and odor.

Bitter flavor is normal in virgin olive oil. It is not a defect.

- (1) Inspectors will score the oil as either normal or off flavor and odor, as appropriate. The scale below can aid as an assessment tool to determine the score.

Flavor Intensity Score	Perception	
0	Total Absence	} Normal
1-2	Barely perceptible	
3-4	Slight	
5-6	Average	} Off
7-8	Great	
9-10	Extreme	

- f. Score the flavor and odor of the oil as Normal if less than or equal to 2.
- g. Score the flavor and odor of the oil as Off if equal to or greater than 3.
- h. Cleanse the palette between scoring each sample with a slice of fresh apple or water.
- i. Mark the most pronounced samples (off flavor) and send them to the Blakely Laboratory for flavor panel review and analysis at one sample plus the deviant rate. (As indicated previously, the set of samples sent to the Blakely Laboratory should be in duplicate.)
- j. The flavor panel at the Blakely Laboratory will score sample unit flavor intensity on a scale of 1-10. The flavor panel will also determine values for “Median of Defect” and Median of the Fruity.” PPD will use the panel results for determining final flavor results. The panel results take precedence if there are differences in flavor evaluations.
- k. For Median of Fruity, the product would have fruity notes characteristic of fresh olives. This includes but is not limited to:
 - (1) Olive
 - (2) Nutty
 - (3) Fresh mown grass
 - (4) Tomato leaf
 - (5) Apple
 - (6) Floral
- l. Only. the S&T Flavor Panel will score the intensity on a scale of 1 to 10.
- m. Excellent flavor and odor (Median of the Fruity > 0; Median of Defects = 0)
- n. Acceptable flavor and odor (Median of the Fruity > 0; Median of Defects = 0 to 2.5)

- f. Crude olive-pomace oil is usually opaque dark green, brown, or black.

IV. SCORESHEET

A. Refer to the AIM [General Procedures](#) manual for instructions on completing a scoresheet.

1. Determine the free fatty acid for each sample.
2. Determine if flavor and odor is normal or off. Normal means typical of the type of product.
3. All other olive oil and olive-pomace oil types are not scored for median of fruity or defects. Put N/A on the scoresheet if this is the case. **Do not flavor crude olive-pomace oil.**
4. Pour each sample into a 100 ml glass cylinder or beaker.
5. Determine the color if normal or off. Normal means typical of olive oil color varying from light yellow to olive green.
6. **Do not give a final grade to the product until results are received from the lab.**

B. Once results are received from the lab, attach the results to the scoresheet, and complete the scoresheet as appropriate. The following will aid in interpreting the fatty acid results. Fatty acids are organized in the list by the number of Carbons (C) and double bonds (0, 1, or 2) found in the molecular chain of the fatty acid. The *trans* fatty acids have 1, 2, or 3 *trans* isomers (1T, 2T, or 3T).

C14:0	Myristic Acid	≤ 0.05
C16:0	Palmitic Acid	7.5 – 20.0
C16:1	Palmitoleic Acid	0.3 - 3.5
C17:0	Heptadecanoic Acid	≤ 0.3
C17:1	Heptadecenoic Acid	≤ 0.3
C18:0	Stearic Acid	0.5 – 5.0
C18:1	Oleic Acid	55.0 – 83.0
C18:2	Linoleic Acid	3.5 – 21.0
C18:3	Linolenic Acid (Values between 1.0 and 1.5 subject to further testing listed in Table II of grade standards)	≤ 1.0
C20:0	Arachidic Acid	≤ 0.6
C20:1	Gadoleic Acid(Eicosenoic)	≤ 0.4
C22:0	Behenic Acid	≤ 0.2 (Limit raised to 0.3 for olive-pomace oil)
C24:0	Lignoceric Acid	≤ 0.2

Trans fatty acids

C18:1T and C18:2T+C18:3T	≤0.05 (Extra Virgin and Virgin)
C18:1T and C18:2T+C18:3T	≤0.10 (Lampante)
	≤0.20 (Refined and Crude Olive-Pomace)
	≤0.40 (Olive-Pomace)
C18:2T + C18:3T	≤0.30 (Refined)
	≤0.35 (Olive-Pomace)
	≤0.10 (Crude Olive-Pomace)

- C. Review the results and compare to the Tables in the grade standards.
1. If all samples meet the designated grade, then the lot meets the designated grade.
 2. If the number of samples that fail the designated grade is less than the deviant rate, the lot meets the requirement for the designated grade if the failing samples do not fall below the next lower grade designation. See example on page 21.
 3. If the number of samples that fail the designated grade requirements is more than the deviant, score the lot in the next lower category.
 4. Worse than a deviant - if any samples fall more than one level below the designated grade, score the lot in the lowest category. See examples 2 and 3 on page 21.
- D. There are three classes of olive oil:
1. Virgin olive oil, including extra virgin olive oil, is unprocessed or crude olive oil
 2. Olive oil
 3. Refined olive oil
- E. **Olive-pomace oil cannot be labeled as olive oil. See Regulatory Requirements (Section IV, B.)**

F. The hierarchy of grade designations from highest to lowest is as follows:

Extra Virgin Olive Oil	Top grade	}	Virgin olive oil
Virgin Olive Oil	↓		
Lampante	↓		
Olive oil	↓	}	Olive Oil
Refined olive oil	↓		
Olive-pomace oil	↓	}	Olive-pomace oil
Refined olive-pomace oil	↓		
Crude olive-pomace oil	Bottom grade		

Examples:

1. 1000 cases labeled extra virgin olive oil
2 out of 13 samples graded as virgin due to flavor defects

The number of samples falling below the designated grade doesn't exceed the deviant rate and does not fall more than one grade below the designated grade.

The lot as a whole is graded **U.S. Extra Virgin Olive Oil**

2. 1000 cases labeled extra virgin olive oil
3 out of 13 samples graded as virgin due to flavor defects.

The lot as a whole is graded "**U.S. Virgin Olive Oil**" account "**Median of Defects**"

The number of samples falling below the designated grade exceeds the deviant rate.

3. 1000 cases labeled extra virgin olive oil
2 out of 13 samples graded as olive oil due to the analytical results.

The lot is graded as "**U.S. Olive Oil,**" not extra virgin.

The number of samples falling below the designated grade exceeds the deviant rate and falls more than one grade below the designated grade.

4. 1000 cases labeled extra virgin olive oil
4 out of 13 samples graded as lampante oil due to flavor and odor and acidity.

The lot as a whole is graded as **“U.S. Virgin Olive Oil not fit for Human Consumption or U.S Lampante Oil,”** account **“Flavor and odor”** and **“Free acidity.”**

The number of samples falling below the designated grade exceeds the deviant rate and falls more than one grade below the designated grade.

IV. CERTIFICATION

A. Body of the Certificate

1. Follow the procedures in the [AIM Inspection Series Certification Manual](#).
2. Record the technical Information in ranges except where noted (See Appendix II, Example)
 - a) Net contents
 - b) Free fatty acidity content, percent g/100 grams (as oleic)
 - c) Peroxide value
 - d) Determination of absorbency in ultraviolet
 - e) Determination of the fatty acid composition
 - (1) Report as “meets” if all values fall in line with the standard
 - (2) Report actual linolenic acid value if > 1.0 , but ≤ 1.5
 - (3) Report as “fails” for any of the values do not fall in line with the standard.
 - f) Trans fatty acid content
 - g) Desmethylsterol composition (Percent Total Sterol)
 - h) Total sterol content
 - i) Stigmastadiene content
 - j) Median of Defects
 - k) Median of Fruity
 - l) Other pertinent information

B. Regulatory Requirements

1. In any case where a product is found to be adulterated or to contain filthy material, it should be certified as “Grade Not Certified”.
2. If product labeled as Extra Virgin Olive Oil is found to be adulterated with olive-pomace oil or some other vegetable oil (seed oil), it is considered mislabeled. This is indicated by results outside the ranges provided in the purity tests, i.e., fatty acid composition, stigmastadiene, sterols. Science and Technology will indicate if the product was adulterated on the laboratory report. When this is the case, the U.S. Food and Drug Administration (FDA) should be notified.

Report any occurrences of adulteration to you supervisor who will follow the instructions in [AIM Management Site](#), “Implementation of Memorandum Agreement Between AMS and FDA”, and report this through the chain of command.

VI. **FEES**

- A. Charge at the Group II rate in [the AIM General Procedures manual](#), “Fees-Lot inspection Grading Service”.
- B. The hours do not include charges for the special analyses or special inspection programs. Consult you supervisor if this is the case.
- C. The applicant is charged by S&T separately, unless otherwise agreed upon.

REPRODUCE LOCALLY. Include form number and date on all reproductions.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE FRUIT AND VEGETABLE PROGRAMS LABORATORY SAMPLE SUBMITTAL SHEET		TO Laboratory Supervisor USDA,AMS,Science and Technology Programs (S&T) Science Specialty Laboratory 6567 Chancey Mill Road Blakely, GA 39823-2785
APPLICANT ABC Olive Oil Ranch 123 Anystreet Road Anytown, CA 55555		FROM Officer in Charge USDA,AMS,FV,PPB 2202 Monterey St., Suite 102-A Fresno, CA 93721-3175
RECEIVER Commercial		NO. OF SAMPLES 1 -16 fl. oz. bottle <input checked="" type="checkbox"/> Individual <input type="checkbox"/> Individual to be composited <input type="checkbox"/> Composite <input type="checkbox"/> Original <input type="checkbox"/> Reserve
PRODUCT Olive Oil	TYPE Extra Virgin Olive Oil	STYLE
CONTRACT NO. N/A	LOT NO. 1	SAMPLE NO. 1
SPECIFICATION AND AMENDMENT U.S Standards for Grades of Olive Oil and Olive-Pomace Oil	EFFECTIVE DATE Oct. 25, 2010	NO. AND TYPE OF CASES 12/16 oz. bottles
RESULTS AND BILLING TO Officer in Charge Fresno, CA		NO. OF POUNDS N/A SUBMITTED BY (<i>Print and Sign Inspector's Name</i>) J. B. Smith DATE SIGNED
TO BE COMPLETED BY LAB		
DATE RECEIVED	LAB NO.	CONDITION OF SAMPLE
SHIPPING METHOD		
RESULTS		
CHARGES	<input type="checkbox"/> MEETS <input type="checkbox"/> FAILS (<i>If fails, explain below</i>)	
SUBCENTER NUMBER	ANALYZED BY (<i>Print and Sign Name</i>)	DATE SIGNED

APPENDIX I
Example 2

Olive Oil and Olive-Pomace-Oil
May 2012


REPRODUCE LOCALLY. Include form number and date on all reproductions.



U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE FRUIT AND VEGETABLE PROGRAMS LABORATORY SAMPLE SUBMITTAL SHEET		TO Laboratory Supervisor USDA,AMS,Science and Technology Programs (S&T) Science Specialty Laboratory 6567 Chancey Mill Road Blakely, GA 39823-2785	
APPLICANT ABC Olive Oil Ranch 123 Anystreet Road Anytown, CA 55555		FROM Officer in Charge USDA,AMS,FV,PPB 2202 Monterey St., Suite 102-A Fresno, CA 93721-3175	
RECEIVER Commercial		NO. OF SAMPLES 2 -16 fl. oz. bottle <input type="checkbox"/> Individual <input checked="" type="checkbox"/> Individual to be composited <input type="checkbox"/> Composite	
<input type="checkbox"/> Original <input type="checkbox"/> Reserve			
PRODUCT Olive Oil	TYPE Extra Virgin Olive Oil	STYLE	
CONTRACT NO. N/A	LOT NO. 1	SAMPLE NO. 2	
SPECIFICATION AND AMENDMENT U.S Standards for Grades of Olive Oil and Olive-Pomace Oil		EFFECTIVE DATE Oct. 25, 2010	NO. AND TYPE OF CASES 12/16 oz. bottles
		NO. OF POUNDS N/A	
RESULTS AND BILLING TO Officer in Charge Fresno, CA		SUBMITTED BY (Print and Sign Inspector's Name) J. B. Smith DATE SIGNED	
TO BE COMPLETED BY LAB			
DATE RECEIVED	LAB NO.	CONDITION OF SAMPLE	
SHIPPING METHOD			
RESULTS			
CHARGES	<input type="checkbox"/> MEETS <input type="checkbox"/> FAILS (If fails, explain below)		
SUBCENTER NUMBER	ANALYZED BY (Print and Sign Name)	DATE SIGNED	


FORM FV-637 (04-05) Computer Generated (Edition 11-83 may be used)



APPENDIX II
Example 1

Olive Oil and Olive-Pomace-Oil
May 2012



UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE		Please refer to this certificate by number and inspection office.
CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Z- 000000
<p>This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7U.S.C. 1622 (h)). The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.</p>		
DATE November 16, 2008		
APPLICANT XYZ Bottling Company	ADDRESS Stockton, California 95207	
RECEIVER OR BUYER -----	ADDRESS -----	
SOURCE OF SAMPLES Officially Sampled	PRODUCT INSPECTED OLIVE OIL	
CODE MARKS ON CONTAINERS G1119 ...		
PRINCIPAL LABEL MARKS "Bart's Extra Virgin Olive Oil Net Contents 16.9 oz. (500 ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA"		
Net contents:	Meets label declaration	
Free fatty acid, g/100 g (as Oleic):	0.1 to 0.4 percent	
Peroxide value:	16 to 19 mEq peroxide oxygen per kg/oil	
Absorbency in UV:	0.20 to 0.22(K% 1 cm)	
ΔK:	0.009 (K% 1 cm)	
Fatty Acid composition:	Meets	
Trans fatty acid content:	0.04 percent	
Desmethylsterol composition:	Meets	
Total sterol:	1010 mg/kg	
Stigmastadiene content:	0.08 mg/kg	
GRADE:		
Flavor and odor:	Excellent Median of Fruity - 2.5)	
REMARKS: U.S. EXTRA VIRGIN OLIVE OIL		
<p>This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Cases stamped with USDA "OFFICIALLY SAMPLED" stamp as shown above. Meets applicable U.S. Standards for Condition of Food Containers.</p>		
<p><i>Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.</i></p>		
		
ADDRESS OF INSPECTION OFFICE 5635 Stratford Circle, Suite 11 Stockton, CA 95207 (209) 946-6301	SIGNATURE OF INSPECTOR <i>Jane Doe</i> Jane Doe	
FORM FV-146CS (9-92)		


UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Please refer to this certificate by number and inspection office.
This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7U.S.C. 1622 (h)). The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.		Z- 000000
		DATE November 16, 2010
APPLICANT XYZ Bottling Company	ADDRESS Stockton, California 95207	
RECEIVER OR BUYER -----	ADDRESS -----	
SOURCE OF SAMPLES Officially Sampled	PRODUCT INSPECTED OLIVE OIL	
CODE MARKS ON CONTAINERS B2229 ...		
PRINCIPAL LABEL MARKS "Olivia's Extra Virgin Olive Oil Net Contents 16.9 oz. (500 ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA"		
Net contents: Free fatty acid, g/100 g (as Oleic): Peroxide value: Absorbency in UV at 270 nm: ΔK: Fatty acid composition: Trans fatty acid content: Desmethylsterol composition: Total sterol: Stigmastadiene content:	Meets label declaration 0.1 to 0.4 percent 16 to 19 meq peroxide oxygen per kg/oil 0.20 to 0.22(K% 1 cm) 0.009 (K% 1 cm) Meets 0.04 percent Meets 1010 mg/kg 0.08 mg/kg	
GRADE: Flavor and odor: Good (Median of Defects-1.2)		
U.S. VIRGIN OLIVE OIL (account "Median of Defects") See label statement above for Grade		
REMARKS: This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Cases stamped with USDA "OFFICIALLY SAMPLED" stamp as shown above. Meets applicable U.S. Standards for Condition of Food Containers.		
Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.		
	ADDRESS OF INSPECTION OFFICE 5635 Stratford Circle, Suite 11 Stockton, CA 95207 (209) 946-6301	SIGNATURE OF INSPECTOR <i>Jane Doe</i> Jane Doe
FORM FV-146CS (9-92)		

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE		Please refer to this certificate by number and inspection office.
CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Z- 000000
<p>This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7U.S.C. 1622 (h)). The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.</p>		
<p>DATE November 16, 2010</p>		
<p>APPLICANT <u>XYZ Bottling Company</u></p>	<p>ADDRESS Stockton, California 95207</p>	
<p>RECEIVER OR BUYER -----</p>	<p>ADDRESS -----</p>	
<p>SOURCE OF SAMPLES Officially Sampled</p>	<p>PRODUCT INSPECTED OLIVE OIL</p>	
<p>CODE MARKS ON CONTAINERS I4449</p>		
<p>PRINCIPAL LABEL MARKS "Nuovo Extra Virgin Olive Oil Net Contents 16.9 oz. (500 ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA"</p>		
<p>Net contents: Free fatty acid, g/100 g (as Oleic): Peroxide value: Absorbency in UV at 270 nm: ΔK: Fatty acid composition: Trans fatty acid content: Desmethylsterol composition: Total sterol: Stigmastadiene content:</p>	<p>Meets label declaration 0.1 to 0.4 percent 16 to 19 mEq peroxide oxygen per kg/oil 0.89 to 0.90 (K% 1 cm) 0.15 (K% 1 cm) Meets 0.04 percent Meets 1010 mg/kg 0.08 mg/kg</p>	
<p>GRADE: Flavor and odor:</p>	<p>Good (Median of Defects-1.2)</p>	
<p>U.S. OLIVE OIL (account Absorbency in Ultraviolet and ΔK) See label statement above for Grade</p>		
<p>REMARKS: This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Cases stamped with USDA "OFFICIALLY SAMPLED" stamp as shown above. Meets applicable U.S. Standards for Condition of Food Containers.</p>		
<p><i>Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.</i></p>		
<p>ADDRESS OF INSPECTION OFFICE 5635 Stratford Circle, Suite 11 Stockton, CA 95207 (209) 946-6301</p>		<p>SIGNATURE OF INSPECTOR <i>Jane Doe</i> Jane Doe</p>

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Please refer to this certificate by number and inspection office.
This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7 U.S.C. 1622 (h)). The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.		Z- 000000
		DATE November 16, 2010
APPLICANT	XYZ Bottling Company	ADDRESS Stockton, California 95207
RECEIVER OR BUYER	---	ADDRESS ---
SOURCE OF SAMPLES	Officially Sampled	PRODUCT INSPECTED OLIVE OIL
CODE MARKS ON CONTAINERS		
B2229 . . .		
PRINCIPAL LABEL MARKS		
"Olivia's Extra Virgin Olive Oil Net Contents 16.9 oz. (500ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA" Net Contents:		
	Meets label declaration	
Free Fatty Acid, g/100 g (as Oleic):	0.1 to 0.4 percent	
Peroxide Value:	16 to 19 mEq peroxide ox	
Absorbency in UV at 270 nm:	0.21 to 0.22(K% 1 cm)	
ΔK:	0.01 (K% 1 cm)	
Fatty Acid Composition:	Meets	
Trans Fatty Acid Content:	0.04 percent	
Desmethylsterol Composition:	Meets	
Total Sterol:	1010 mg/kg	
Stigmastadiene Content:	0.08 mg/kg	
GRADE	Flavor and Odor:	Poor (Median of Defects - 7.5)
U.S. Virgin Olive Oil not fit for Human Consumption or U.S Lampante Oil," account "Flavor and odor" and "Free fatty acid." See label statement above for Grade		
REMARKS:		
This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Cases stamped with USDA "OFFICIALLY SAMPLED" stamp as shown above. Meets applicable U.S. Standards for Condition of Food Containers.		
Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.		
	ADDRESS OF INSPECTION OFFICE	SIGNATURE OF INSPECTOR
	5635 Stratford Circle, Suite 11 Stockton, CA 95207	Jane Doe <i>Jane Doe</i>

APPENDIX II
Example 5

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE		Please refer to this certificate by number and inspection office.
CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Z- 000000
<p>This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7U.S.C. 1622 (h)).</p> <p>The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.</p>		
DATE		November 16, 2010
APPLICANT	ADDRESS	
XYZ Bottling Company	Stockton, California 95207	
RECEIVER OR BUYER	ADDRESS	
-----	-----	
SOURCE OF SAMPLES	PRODUCT INSPECTED	
Officially Sampled	OLIVE OIL	
CODE MARKS ON CONTAINERS		
I4449 . . .		
PRINCIPAL LABEL MARKS		
"Nuovo Extra Virgin Olive Oil Net Contents 16.9 oz. (500 ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA"		
Net contents:	Meets label declaration	
Free fatty acid, g/100 g (as Oleic):	0.1 to 0.4 percent	
Peroxide value:	16 to 19 mEq peroxide oxygen	
Absorbency in UV at 470 nm:	0.21 to 0.22 (K% 1 cm)	
ΔK:	0.01 (K% 1 cm)	
Fatty acid composition:	Meets	
Trans fatty acid content:	0.04 percent	
Desmethylsterol composition:	Meets	
Total sterol:	1010 mg/kg	
Stigmastadiene content:	0.08 mg/kg	
Flavor and odor:	Excellent	
GRADE:	(Median of Fruity - 2.5)	
		
REMARKS:	<p>U.S. Grade Extra Virgin Olive Oil Meets requirements of the International Olive Council Standards for Olive Oil, COI/T.15.</p> <p>This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Cases stamped with USDA "OFFICIALLY SAMPLED" stamp as shown above. Meets applicable U.S. Standards for Condition of Food Containers.</p>	
<p><i>Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.</i></p>		
		SIGNATURE OF INSPECTOR
ADDRESS OF INSPECTION OFFICE 5635 Stratford Circle, Suite 11 Stockton, CA 95207 (209) 946-6301		<i>Jane Doe</i> Jane Doe
FORM FV-146CS (9-92)		

UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE CERTIFICATE OF QUALITY AND CONDITION (PROCESSED FOODS)		Please refer to this certificate by number and inspection office.
This certificate is receivable in all courts of the United States as prima facie evidence of the truth of the statements therein contained. It does not excuse failure to comply with any applicable Federal or State laws. WARNING: Any person who knowingly falsely make, issue, alter, forge, or counterfeit this certificate, or participate in any such action, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both (7U.S.C. 1622 (h)). The conduct of all services and the licensing of all personnel under the regulations governing such services shall be accomplished without discrimination as to race, color, religion, sex, or national origin.		Z- 000000
		DATE November 16, 2010
APPLICANT XYZ Bottling Company	ADDRESS Stockton, California 95207	
RECEIVER OR BUYER ---	ADDRESS ---	
SOURCE OF SAMPLES Officially Sampled	PRODUCT INSPECTED OLIVE-POMACE OIL	
CODE MARKS ON CONTAINERS P00022 . . .		
PRINCIPAL LABEL MARKS "Olivia's Olive-Pomace Oil Net Contents 16.9 oz. (500ml.) Packed by XYZ Bottling Co. Stockton, CA 95207 USA" Net contents: Meets label declaration Free fatty acid, g/100 g (as Oleic): 0.1 to 0.4 percent Peroxide value: 5 to 11 meq peroxide oxygen per kg/oil Absorbency in UV at 270 nm: 1.01 to 1.16(K% 1 cm) ΔK: 0.17 (K% 1 cm) Fatty acid composition: FAILS Trans fatty acid content: 0.04 percent Desmethylsterol composition: Meets Total sterol: 1650 mg/kg Stigmastadiene content: 60 mg/kg Flavor and Odor: Acceptable GRADE: Fails requirements for U.S. Standards for Grades of Olive-Pomace Oil, account "Fatty Acid Composition," linolenic acid value exceeds 1.5 percent. See label statement above for Grade		
REMARKS: This certificate covers 1000 cases of 12/16 oz. bottles. Product packed in glass bottles with tamper-evident twist off caps and cased in domestic corrugated fiber cartons. Lot identified by codes shown above and located in warehouse of XYZ bottling company, Stockton California. Meets applicable U.S. Standards for Condition of Food Containers.		
	Pursuant to the regulations issued by the Secretary of Agriculture under the Agricultural Marketing Act of 1946, as amended (7 U.S.C. 1621-1627), governing the inspection certification of the product designated herein, I certify that the quality and condition of the product as shown by samples inspected on the above date were as shown, subject to any restrictions specified above.	
ADDRESS OF INSPECTION OFFICE 5635 Stratford Circle, Suite 11 Stockton, CA 95207 (209) 946-6301	SIGNATURE OF INSPECTOR <div style="text-align: center; margin-top: 10px;"> <i>Jane Doe</i> </div>	
FORM FV-146CS (9-92)		