

# Olive Oil Analysis: Quality and Grade

## Extra Virgin Olive Oil Quality parameters

International standards define virgin olive oil as obtained exclusively from olives, using mechanical or other physical means in conditions that do not alter the oil in any way, specifically excluding heating and chemical processing.

Extra Virgin olive oil is the highest quality virgin olive oil. According to current trade standards, it must have no organoleptic defects and must meet the following analytical criteria:

Parameter	IOC *	COOC **
Free Acidity	< 0.8 %	< 0.5 %
Peroxide	< 20 meq O2/kg	
UV - K232	< 2.50	
UV - K270	< 0.22	
UV - Delta K	< 0.01	

\* IOC = International Olive Council

\*\* COOC = California Olive Oil Council

Collectively, these parameters give indication of fruit quality and handling prior to processing, and of the oil's present state of oxidation.

## What do these parameters measure?

**Free Acidity (FFA)** commonly referred to as "free fatty acid percent". High values are an indicator of poor fruit quality or improper handling prior to milling, as free acidity arises from the hydrolytic breakdown of the oil. Free acidity is measured as free fatty acids expressed as percent of oleic acid, the predominant fatty acid in olive oil.

### Peroxide Value (PV)

measures the amount of primary oxidation in the oil. High values are caused by improper handling of olive fruit or olive paste. Olive oil with high peroxide value may not keep well. Peroxides are expressed as milliequivalent of free oxygen per kilogram of oil (meq O<sub>2</sub>/kg).

### Ultraviolet Absorbance

**(UV)** is an indicator of secondary oxidation, especially in oils that have been refined. The value of UV absorbance at two different wavelengths, 232 nanometers (nm) and 270 nm, indicates the quantity of oxidized compounds present in the oil. Pomace and refined oils have higher values than virgin oils.

Agbiolab is a supporting member  
of the California Olive Oil Council.

## What analyses are required?

The **State of California** standards require analysis of free acidity and peroxide value to determine grade.

The **California Olive Oil Council (COOC)** Extra Virgin Olive Oil Certification program requires free acidity and peroxide value. Productions larger than 50 gallons must submit also ultraviolet (UV) absorbance.

**Los Angeles Extra Virgin Olive Oil International Competition** requires free acidity and peroxide.

## How to submit your samples

- Submit 375 or 500 ml bottles
- Label each sample
- Enclose submission form indicating the desired analyses:

**Basic set:** Free acidity and Peroxide

Or

**Large Set:** Free Acidity, Peroxide and UV Absorbance.

- Download Submission Forms and labels from our website:

**www.agbiolab.com**  
under Samples.

- Our address:

**Agbiolab, Inc**  
**2692 House Ave**  
**Durham, CA 95938**



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