

INSTRUCTION MANUAL

HI3897

Extra Virgin Olive Oil Acidity Test Kit



Dear Customer,

Thank you for choosing a Hanna Instruments® product. Please read this instruction manual carefully before using the chemical test kit. For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com.

For technical support, contact your local Hanna Instruments office or e-mail us at tech@hannainst.com.

Preliminary Examination

Remove the product from the packing material and examine it carefully. For any further information, please contact Hanna Instruments technical support team at tech@hannainst.com. Each HI3897 kit is supplied with:

- HI3897-0 Titrant solution, 20 mL bottle
- Organic Solvent, 40 mL bottle (6 pcs.)
- Magnetic stirrer
- Magnetic stir bar (6 pcs.)
- 5 mL graduated syringe
- 1 mL graduated syringe with tip
- Instruction manual

Note: Save all packing material. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

Specifications

Range	0 to 1 % acidity
Smallest increment	0.01 mL = 0.01 %
Analysis method	Titration
Sample size	4.6 mL (4.0 g)
Number of tests	6
Case dimensions	112 x 390 x 318 mm (4.4 x 15.3 x 12.5")
Weight	3 kg (105.8 oz)

General Description & Intended Use

The HI3897 is an easy, affordable, and accurate way to determine the quality, classification, and freshness of olive oil.

Acidity (expressed as % oleic acid) is a primary indicator of olive oil purity and freshness, and a measure of present "free" fatty acids. As "bound" fatty acids break down, "free" fatty acids form thus increasing the % acidity of the olive oil.

European Commission regulation no. 2568/91 indicates that olive oil is labeled "extra virgin" when acidity is below 1 %.

Characteristics of olive oil as per EEC 2568/91

OLIVE OIL TYPE	ACIDITY %
extra virgin	≤ 1.0
virgin	≤ 2.0
ordinary virgin	≤ 3.3
virgin lampante	> 3.3

Titration Method

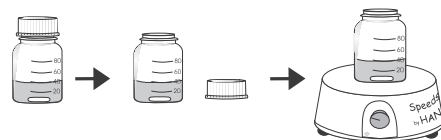
The HI3897 kit accurately tests the quality of stored olive oil or its progress at various processing stages by utilising a titration method where the endpoint is visually determined when the colour changes from yellow-green to pink.

The olive oil sample is initially dissolved in an organic solvent reagent (i.e. ethanol/ether) and then the sample is titrated with sodium hydroxide until the color change is observed.

Collecting & Measuring Samples and Reagents

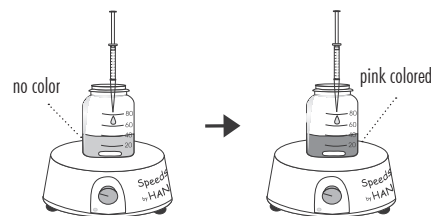
- ⚠ Read the instructions before using the test kit.
Open solvent bottle carefully as it releases build-up pressure inside.

1. Uncap one bottle of organic solvent reagent and place bottle on stirrer. Keep stirring speed to a minimum.



2. Use 1.0 mL syringe to add HI3897-0 titrant dropwise. Add titrant until the solution in the bottle changes from no color to light pink.
3. Replace the cap.

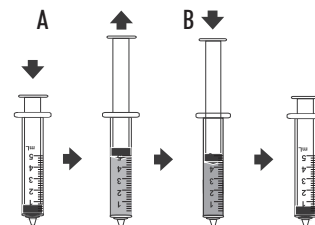
Note: Stop adding titrant as soon as solution in bottle has turned pink.



4. Use supplied 5.0 mL syringe to draw up 4.6 mL of sample. Alternatively, use an analytical balance to weigh about 4.0 g ("w" grams) of sample.

drawing up olive oil sample

- insert the plunger into the syringe
- insert syringe tip into sample
- pull back the plunger until lower edge of the seal is on 5 mL mark (A)
- remove syringe from sample and wipe any drops off the syringe tip
- hold the syringe vertically (above the sample) and gently push the plunger down to the 4.6 mL mark (B). Wipe drops, if any, off the syringe tip.



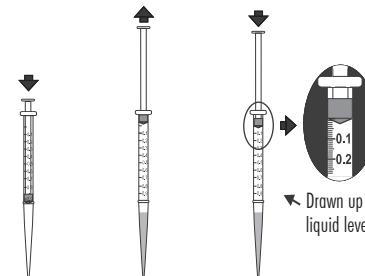
5. Uncap the solvent reagent bottle.
6. Hold the syringe vertically (above the solvent bottle) and push the plunger down to dispense the 4.6 mL of olive oil sample.



7. Replace the cap and place the bottle on the magnetic stirrer. Stir on a low speed until the olive oil sample is completely dissolved.
8. Use the 1.0 mL graduated syringe to draw exactly 1.0 mL of HI3897-0 titrant solution.

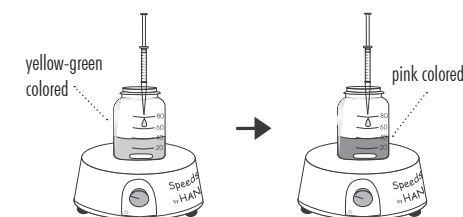
drawing up titrant reagent

- insert the plunger into the syringe
- insert syringe tip in titrant
- pull back plunger until lower edge of the seal is on the 0 mL mark
- remove the syringe from titrant solution and wipe any drops off syringe tip



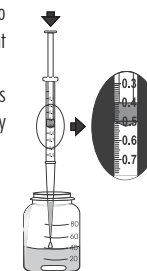
9. Uncap the solvent reagent bottle.
10. Hold syringe vertically (above bottle). Dispense titrant solution dropwise. Allow solution to be stirred after each drop.
11. Add titrant until solution in bottle changes from yellow-green to pink.

Note: Stop adding titrant as soon as the solution has turned pink.



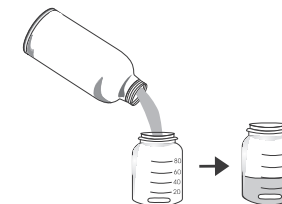
12. The number of milliliters of titrant used to reach the endpoint will determine the percent oil acidity i.e. 0.5 mL = 0.5 % oil acidity. Alternatively, if "w" grams of oil sample was weighed and added to the bottle, the acidity is calculated:

$$\frac{\text{mL of titrant} \times 4}{\text{"w" grams}} = \% \text{ oil acidity}$$



Using the Replacement Kit

- Pour solvent from the 400 mL bottle into an empty 40 mL Organic Solvent bottle, up to the mark. The empty bottle must be clean and dry.
- Add a magnetic stir bar and cap the bottle tightly.
- Follow the Collecting & Measuring Samples and Reagents procedure.
- Store the bottle capped tightly in a cool and well-aired place.



Accessories

HI3897-010	Organic solvent replacement kit (10 tests)
HI731319	Magnetic bar (10 pcs.)
HI740226	5 mL graduated syringe
HI740142P	1 mL graduated syringe (10 pcs.)
HI740144P	Tip for 1 mL graduated syringe (10 pcs.)

Reference

Commission Regulation (EEC) No 2568/91 and subsequent updates.

Health & Safety

The chemicals contained in this test kit may be hazardous if improperly handled. Read Health and Safety Data Sheets before performing the test.