

HI83730 ISM peroxide value of edible oils

Dear Customer,

Thank you for choosing a Hanna Instruments product. This manual will provide you with the necessary information for the correct use of the instrument. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

This instrument is in compliance with CE directives.

Preliminary examination

Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occurred during shipment, please contact your local Hanna Instruments Office.

Each HI83730 Ion Selective Meter is supplied complete with:

- reagents for 10 tests;
- four graduated 1 mL syringes, scissors, tissue for wiping vials;
- four 1,5V AA batteries and AC Adapter
- instruction manual and rigid carrying case
- quality certificate

Note: Save all packing material until you are sure that the instrument works correctly. Any defective item must be returned in its original packing.

General description

The HI83730 is an auto-diagnostic portable microprocessor meter that benefits from Hanna Instruments' years of experience as a manufacturer of analytical instruments. It has an advanced optical system based on a special tungsten lamp and a narrow band interference filter that allows most accurate and repeatable readings. All instruments are factory calibrated.

The auto-diagnostic feature of this meter ensures always optimal measurement conditions to ensure most precise readings. The light level is automatically adjusted each time a zero-measurement is made, and the temperature of the lamp is controlled to avoid overheating.

Significance and use

Peroxides are the primary products of oil oxidation. Their identification gives useful informations about oil conservation and rancidity. HI83730 allows fast and simple analyses of peroxides in oil in accordance with the EC 2568/91 method.

Oil peroxides content

< 10 meq O ₂ /kg	excellent conservation
10-15 meq O ₂ /kg	good conservation
< 10 meq O ₂ /kg	refined oil
> 20 meq O ₂ /kg	rancid oil

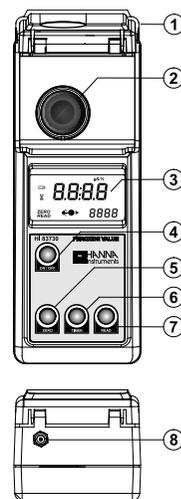
Specifications

Range	0.0 to 25.0 meq O ₂ /kg
Resolution	0.5 meq O ₂ /kg
Accuracy	± 0.5 meq O ₂ /kg
Method	tungsten lamp with narrow band interference filter @466 nm. Method adaptation of EC 2568/91 method and following amendments
Light detector	silicon photocell
Environment	0 to 50 °C (32 to 122 °F); max 95% RH
Power supply	4x1.5 V AA or adapter 12 Vdc
Auto shut-off	after 15 min of non use
Weight	512 g
Dimensions	224 mm x 87 mm x 77 mm

Required reagents

Code	Description	Quantity/test
HI83730A-0	Peroxide reagent A	1 vial
HI83730B-0	Peroxide reagent B	1 packet

Functional description



- 1) Lid
- 2) Cuvette holder
- 3) Liquid Crystal Display (LCD)
- 4) ON/OFF key, to turn the meter on and off
- 5) ZERO key, to zero the meter
- 6) TIMER key, to active a countdown
- 7) READ key, to perform measurement
- 8) Power socket 12V to 20 Vdc 2.5 Watt

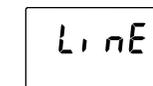
Chemical reaction

The reaction between sample and reagent causes a color variation, proportional to the peroxide content expressed in meq O₂/kg.

Guide to display codes



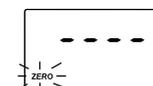
This prompt appears for a few seconds each time the instrument is turned ON.



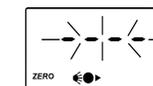
These prompts indicate the type of power supply: "Line" (if the external power supply is used) or the battery level.



Indicates that the instrument is in a ready state and waiting for the next command (Timer or Zero).



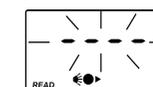
After TIMER is pressed, a blinking hourglass icon appears and the display shows a 6 minutes countdown.



Indicates that the meter is performing a zero measurement. The light intensity is automatically re-adjusted if necessary.



The instrument is zeroed and a measurement can be made.



Indicates that the meter is making a measurement.

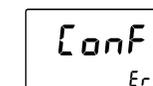


Batteries voltage is getting low and the batteries need to be replaced.

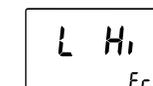


Indicates that the batteries are dead and must be replaced. After this message appears, the instrument is switched off. Change the batteries and restart the meter.

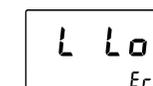
Error messages



The meter has lost its configuration. Contact your local Hanna Instruments Office.



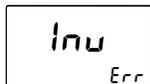
"Light high": there is too much light to perform a measurement. Please check the preparation of the zero cuvette.



"Light low": there is not enough light to perform a measurement. Please check the preparation of the zero cuvette.



"No Light": the lamp is not working because of a malfunction. Contact your local Hanna Instruments Office.



"Inverted": the sample and the zero cuvette are inverted.



The sample absorbs less light than the zero reference. Check the procedure and make sure you use the same cuvette for reference (zero) and measurement.

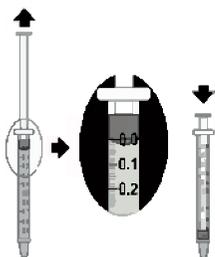


A flashing value of the maximum concentration indicates an over range condition. The concentration of the sample is beyond the programmed range: dilute the sample and measure again.

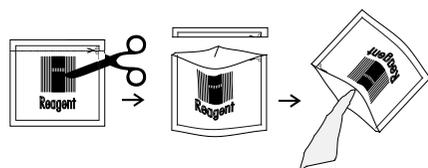
General tips for an accurate measurement

The instructions listed below should be carefully followed during testing to ensure best accuracy.

- In order to measure exactly 1 mL of oil:
 - Push the plunger completely into the syringe.
 - Insert the syringe in the oil and push the plunger up and down twice to rinse and eliminate air bubbles; then pull the plunger up until the lower edge of the seal is exactly on the 0.0 mL mark.
 - Take out the syringe and clean the outside of the syringe tip. Then, keeping the syringe in vertical position above the vial, push the plunger completely down into the syringe.



- Proper use of the powder reagent packet:
 - use scissors to open the powder packet;
 - push the edges of the packet to form a spout;
 - pour out the content of the packet.



- In order to avoid reagent leaking and to obtain more accurate measurements, it is recommended to close the cuvette very well with the cap.

- Whenever the cuvette is placed into the measurement cell, it must be dry outside, and completely free of fingerprints, oil or dirt. Wipe it thoroughly with **HI731318** or a lint-free cloth prior to insertion.

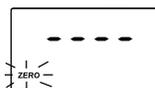


- The official method EC 2568/91 recommends to work at room temperature, between 15 and 25 °C.

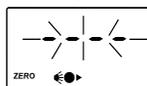
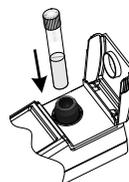
Instructions

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

- Remove the cap from a vial of HI83730A-0 Peroxide reagent.
- Use the graduated syringe to add exactly 1 mL of oil. For a correct use of the syringe, please see the paragraph "General tips for an accurate measurement".
- Add the sample to the vial and replace the cap.
- Mix by inverting the vial twice.
- Turn on the meter by pressing the ON/OFF key. When the LCD displays "----", it is ready.



- Place the vial into the instrument.
- Press the ZERO key and "----" will blink on the display.
- After a few seconds the display will show "-0.0-". The meter is zeroed and ready for measurement. Remove the vial.



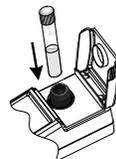
- Remove the cap from the vial and add one packet of HI83730B-0 Peroxide reagent.



- Replace the cap and press TIMER to start the countdown.
- Mix **VIGOROUSLY** for 1 minute.

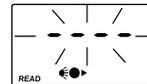


- Insert the vial into the instrument and wait for 5 minutes.



Note: 30 seconds before countdown finishes, invert the vial twice.

- When the countdown finishes, the meter makes the reading. If you have not used the TIMER key, press READ to make the measure. In both cases the display will show "----" during the measurement.



- The meter directly displays the peroxide value in meq O₂/kg on the LCD.

Notes:

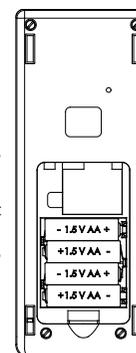
- To convert the reading to mmol O₂/kg multiply the reading by 0.5.
- To convert the reading to mg O₂/kg multiply the reading by 8.

Battery replacement

Battery replacement must only take place in a non-hazardous area. The blinking "⚡" will appear when the batteries power gets low. When batteries are completely discharged, "0% bAtt" will appear and after two seconds the instrument is switched off.

Remove the battery cover from the bottom of the instrument and change the old batteries with 4 fresh 1.5V batteries, paying attention to the correct polarity.

Replace the cover.



Accessories

HI83730-20	reagents kit (21 tests)
HI93703-50	cleaning solution, 230 mL
HI740216	test tube cooling rack
HI740142P	1 mL graduated syringe, 10 pcs.
HI731318	tissue for wiping cuvettes, 4 pcs.
HI710005	voltage adapter from 115V to 12 Vdc
HI710006	voltage adapter from 230V to 12 Vdc

Recommendations for users

Before using this product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. For yours and the meter's safety do not use or store the meter in hazardous environments.

Warranty

HI83730 is warranted for two years against defects in workmanship and materials when used for its intended purpose and maintained according to the instructions.

This warranty is limited to repair or replacement free of charge. Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact your local Hanna Instruments Office. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. If the repair is not covered by the warranty, you will be notified of the charges incurred.

If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service Department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

Health and safety

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