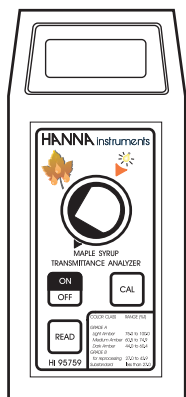


Instruction Manual

HI 95759 Maple Syrup Transmittance Analyzer



HANNA
instruments
www.hannainst.com

CE
This Instrument is in
Compliance with the CE Directives

WARRANTY

HI 95759 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 dealer. 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.

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Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for the correct use of the instrument. Please read it carefully before using the analyzer. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or call 1-800-426-6287.

This instrument is in compliance with **CE** directives EN 50081-1 and EN 50082-1.

PRELIMINARY EXAMINATION

Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occurred during shipment, please notify your Dealer.

Each HI 95759 Transmittance Analyzer is supplied complete with:

- Six Sample Cuvets
- One Light Shield Cap
- Two 5 mL Syringes
- 30 mL Glycerol (1 bottle)
- 9V Battery
- Instruction Manual
- Rigid carrying case

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 HI 95759 portable microprocessor analyzer measures the percent light transmittance of maple syrup compared to analytical reagent grade glycerol. The transmittance value allows identification of the syrup quality class.

Measurements are made using matched square optical cuvettes having a 10 mm light path.

Display codes aid the user in routine operations.

The meters have an auto-shut off feature that will turn the instrument off after 10 minutes of non-use.

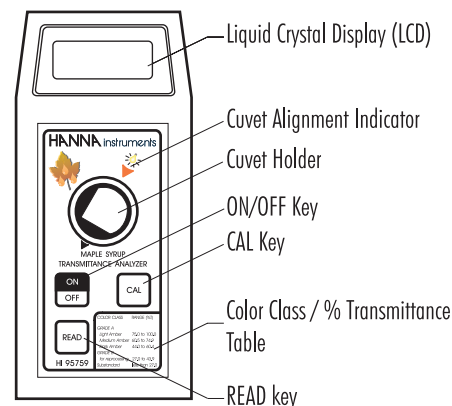
SIGNIFICANCE AND USE

The primary characteristic for classifying maple syrup is color. When syrup is very light in color, as matching the minimum light transmittance standards, the grade assigned to syrup is high. When syrup color is dark, the grade is low. Color classes are expressed in percent of light transmission as compared to an analytical Glycerol Standard Reference fixed at one hundred percent transmission. All syrup is considered to be at minimum density, 66.0 degrees Brix at 68 °F (20

°C), and to have no flavors nor other characteristics extraneous to pure maple syrup.

Color Class	Range (% Transmittance)
Grade A Light Amber	75.0 to 100.0
Grade A Medium Amber	60.5 to 74.9
Grade A Dark Amber	44.0 to 60.4
Grade B for reprocessing	27.0 to 43.9
Substandard	less than 27.0

SPECIFICATIONS



SPECIFICATIONS

Range	0.0 to 100.0% Transmittance
Resolution	0.1% Transmittance
Precision	±1% @ 75.0% Transmittance
Typical EMC Dev.	±0.1% Transmittance
Light Source	Tungsten lamp with narrow band interference filter @ 560 nm
Method	Direct Measurement
Light Detector	Silicon Photocell
Environment	0 to 50°C (32 to 122°F); max 95% RH non-condensing
Battery Type	1 x 9 volt
Auto-Shut off	After 10' of non-use
Dimensions	180 x 83 x 46 mm (7.1 x 3.3 x 1.8")
Weight	290 g (10 oz.)

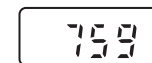
REQUIRED STANDARD

Description	Quantity/test
Glycerol	4 mL

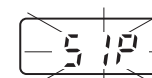
GUIDE TO DISPLAY CODES



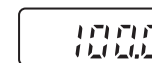
This prompt appears for 1 second each time the instrument is turned on.



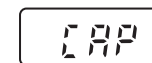
This indicates that the meter is in a ready state and calibration can be performed.



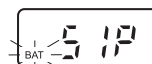
Sampling in Progress. This flashing prompt appears each time the meter is performing a measurement.



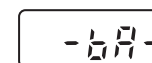
This indicates that the meter has been calibrated and measurement can be performed.



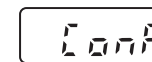
Light over range: the cuvet is not inserted correctly and an excess ambient light is reaching the detector. If the cap is properly installed, then contact your dealer or the nearest Hanna Customer Service Center.



The blinking "BAT" indicates that the battery voltage is getting low and the battery needs to be replaced.



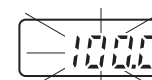
This indicates that the battery is dead and must be replaced. Once this indication is displayed, the meter will lock up. Change the battery and restart.



"Configuration": this indicates that the meter has lost its configuration. Contact your dealer or the nearest Hanna Customer Service Center.

ERROR MESSAGES

a) on calibration



This indicates that the calibration procedure failed due to a low signal-to-noise ratio. In this case press CAL again.



"No Light": the instrument cannot adjust the light level. Please check that the sample does not contain any debris.

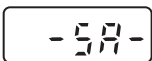


"Light Low": there is not enough light to perform a measurement. Please check the preparation of the Glycerol cuvet.

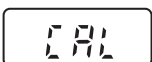


"Light High": there is too much light to perform a measurement. Please check the preparation of the Glycerol cuvet.

b) on sample reading



There is too much light for the sample measurement. Please check if the right sample cuvet is inserted.



"Cal": calibration was not performed. Follow the instruction in the **operational guide** for calibrating the meter.



A blinking "100.0" on sample reading is a warning that the Glycerol Reference cuvet is still inserted in the instrument, or indicates that the sample absorbs less light than the Glycerol Reference. Check the procedure and recalibrate the instrument.

GENERAL TIPS FOR AN ACCURATE MEASUREMENT

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

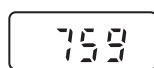
- Use matched square cuvetts, having 4 clear faces and a 10 mm path length.
- Do not touch the cuvet walls with hands.
- Whenever the cuvet is placed into the measurement cell, it must be dry outside, and completely free of fingerprints, oil or dirt. Wipe it thoroughly with **HI 731318** or a lint-free cloth prior to insertion.
- It is important that the sample does not contain any debris. This would corrupt the readings.
- Samples should be completely free of air bubbles. If bubbles are present, let the samples stand until air bubbles have completely disappeared (not more than 30 minutes, see note below).
- It is recommended to take the sample of maple syrup in the middle of the container.
- It is recommended to take and analyze samples at room temperature.

- Do not use the same cuvet with glycerol for more than 5-10 times to perform calibration and dispose of it after 1 day has passed.
- Never re-use maple syrup sample cuvetts, dispose of them after use.
- Use one syringe for glycerol, and the other one for syrup in order to avoid contamination.

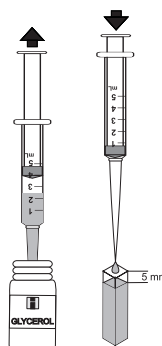
Note: Maple Syrup samples exposed to direct sunlight and/or air will darken over time. This is caused by microorganisms.

OPERATIONAL GUIDE

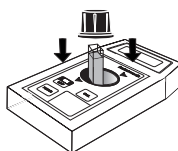
- Turn the meter on by pressing ON/OFF. When the LCD displays "759", it is ready.



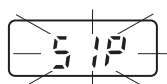
- To perform calibration, use a first syringe to fill one cuvet with 4 mL of Glycerol, up to 5 mm (0.2") below the rim. This is the Glycerol Standard Reference.



- Place the Glycerol cuvet into the holder paying attention to the direction of the light indicated by the arrows on the instrument. Then put the light shield cap on and ensure that the notch on the cap is positioned securely into the groove.



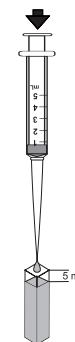
- Press CAL and "SIP" will blink on the display.



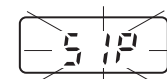
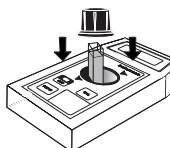
- After a few seconds the display will show "100.0". The meter is now calibrated and ready for measurement.



- Remove the Glycerol cuvet.
- Use the second syringe to add to a clean cuvet 4 mL of maple syrup, up to 5 mm (0.2") below the rim. This is the sample.



- Place the sample cuvet into the holder paying attention to the direction of the light indicated by the arrows on the instrument. Then put the light shield cap on and ensure that the notch on the cap is positioned securely into the groove.
- Press READ and "SIP" will blink during measurement.



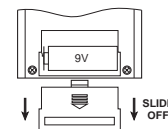
- The instrument directly displays percent of light transmittance as compared to Glycerol Standard (fixed at one hundred percent).
- Check in the manual or on the front panel to which color class the transmittance value corresponds.

INTERFERENCES

Interference may be caused by air bubbles or turbidity in the sample. Scratched or dirty cuvetts will also affect readings. Always check clearness of cuvetts prior to use.

BATTERY REPLACEMENT

Battery replacement must only take place in a non-hazardous area. Simply slide off the battery cover on the back of the meter. Detach the battery from the terminals and attach a fresh 9V battery while paying attention to the correct polarity. Replace the battery and replace the cover.



ACCESSORIES

ANALYSIS KIT

C219/C220 Kit Kit for Maple Syrup analysis, including 82 cuvetts, 30 mL of Glycerol and two 5 mL syringe (75 tests average)

OTHER ACCESSORIES

HI 710009 Blue rubber boot
HI 710010 Orange rubber boot
HI 721310 9V battery (10 pcs)
HI 731318 Tissue for wiping cuvetts (4 pcs)
HI 731335 Caps for cuvetts (4 pcs)

CE DECLARATION OF CONFORMITY



DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl
 Viale Delle Industrie, 12/A
 35010 Villafranca Padovana- PD
 ITALY

herewith certify that the meter:

HI 95759

Has been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 61000-4-2 Electrostatic Discharge
IEC 61000-4-3 RF Radiated

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard
EN 55022 Radiated, Class B

EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 18-06-2002

A. Marsilio - Engineering Manager
 On behalf of
 Hanna Instruments Italia S.r.l.

Recommendations for Users

Before using these products, make sure that they are entirely suitable for your specific application and for the environment in which they are used.

Operation of these instruments may cause unacceptable interferences to other electronic equipments, this requiring the operator to take all necessary steps to correct interferences. Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance.

To avoid damages or burns, do not put the instrument in microwave oven. For yours and the instrument safety do not use or store the instrument in hazardous environments.