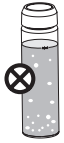
Tips for an Accurate Measurement



- It is important that the sample does not contain any debris.
- Whenever the cuvette is placed into the measurement cell, it must be dry outside, and completely free of fingerprints, oil and dirt. Wipe it thoroughly with HI731318 or a lint-free cloth prior to insertion.
- Shaking the cuvette can generate bubbles, causing higher readings. To obtain accurate measurements, remove such bubbles by swirling or by gently tapping the cuvette.
- Do not let the reacted sample stand for too long after reagent is added, as accuracy will be affected.
- After the reading it is important to immediately discard the sample, otherwise the glass might become permanently stained.



Battery Management

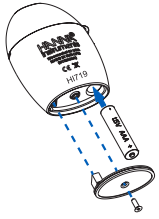
To save the battery, the instrument shuts down after 10 minutes of non-use.

One fresh battery lasts for a minimum of 5000 measurements. When the battery is dead the instrument will display "**bAd**" then "**bAt**" for 1 second and then turns off.

To restart the instrument, the battery must be replaced with a new one.

To replace the instrument's battery:

- Turn the instrument off by holding the button until the meter shuts off.
- Turn the instrument upside down and remove the battery cover with a screwdriver.



- Remove the battery from its location and replace it with a new one, inserting the negative end first.
- Insert the battery cover and replace the screw with a screwdriver.

Recommendations for Users

Before using Hanna Instruments 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 equipment, thus requiring the operator to take all necessary steps to correct such interferences. Any variation introduced by the user to the supplied equipment may degrade the instrument's 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.

Accessories

Reagent Sets	
HI719-25	Reagents for 50 Mangnesium Hardness tests
Other Accessories	
HI719-11	Magnesium Hardness Certified Standard Kit
HI731225	Cuvette Black Cap for Checker® HC Colorimeters (4 pcs.)
HI731318	Cloth for wiping cuvettes (4 pcs.)
HI731321	Glass cuvettes and Seal Cap for Checker® HC Colorimeters (4 pcs.)
HI731353	Cuvette Seal Cap for Checker® HC Colorimeters (4 pcs.)
HI740028P	1.5V AAA batteries (12 pcs.)
HI93703-50	Cuvette cleaning solution (230 mL)

Warranty

HI719 is warranted for a period of one year after date of purchase against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is 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 problem. 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 Return Goods Authorization number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packed for complete protection.

IST719 05/18

INSTRUCTION MANUAL

HI719

Magnesium Hardness



HANNA® instruments

Thank You

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the instrument.
For more information about Hanna Instruments and our products, visit www.hannainst.com.
For technical support, contact your local Hanna Instruments Office or e-mail us at tech@hannainst.com.
Find your local Hanna Instruments Office on www.hannainst.com.

Preliminary Examination

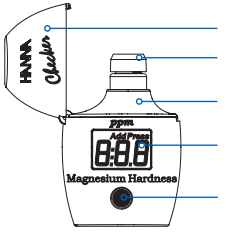
Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occurred during shipment, please contact your local Hanna Instruments Office. Each HI719 meter is supplied complete with:

- Sample Cuvettes and Caps (2 pcs.)
- Reagents set for 50 tests
- 100 mL Plastic Beaker (1 pc.)
- 1 mL Syringe with Tips (2 pcs.)
- 1.5V AAA Battery (1 pc.)
- Instruction Manual and Quick Reference Guide

Specifications

Range	0.00 to 2.00 ppm
Resolution	0.01 ppm
Accuracy	±0.20 ppm ±5% of reading @25 °C/77 °F
Light Source	Light Emitting Diode @525 nm
Light Detector	Silicon Photocell
Method	Adaptation of the Standard Methods for the Examination of Water and Wastewater, 18th edition, EDTA colorimetric method. The reaction between magnesium and reagents causes a reddish-violet tint in the sample.
Environment	0 to 50 °C (32 to 122 °F); max 95% RH non-condesing
Battery Type	1.5V AAA (1 pc.)
Auto-Shut off	After 10 minutes of non-use
Dimensions	86.0 x 61.0 x 37.5 mm (3.4 x 2.4 x 1.5")
Weight	52 g (1.84 oz.)

Functional Description



Errors and Warnings



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.

Inverted Cuvettes: The sample and the zero cuvette are inverted.

Under Range: A blinking **"0.00"** indicates that 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.

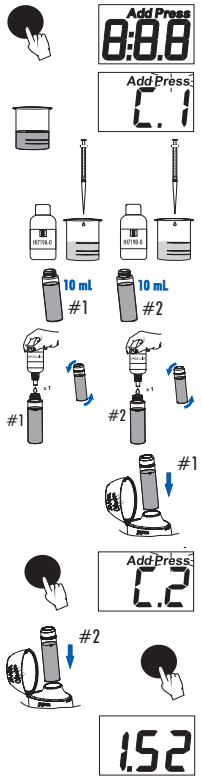
Over Range: A flashing value of the maximum concentration indicates the reading is over range. Dilute the sample and re-run the test.

Battery Low: The battery must be replaced soon.

Dead Battery: This indicates that the battery is dead and must be replaced. Once this indication is displayed, normal operation of the instrument will be interrupted. Change the battery and restart the meter.

Measurement Procedure

- Turn the meter on by pressing the button. All segments will be displayed. When the display shows "**Add**", "**C.1**" with "**Press**" blinking, the meter is ready.
- Rinse a graduated beaker several times with unreacted sample, before filling it to the 50 mL mark with sample.
- Add 0.5 mL of HI719A-0 reagent, swirl to mix.
- Add 0.5 mL of HI719B-0 reagent, swirl to mix.
- Use this solution to rinse 2 cuvettes. Fill both cuvettes up to the 10 mL mark.
- Add 1 drop of HI719C-0 reagent to one cuvette (#1), replace the cap and invert the cuvette several times to mix. This is the blank.
- Add 1 drop of HI719D-0 reagent to the second cuvette (#2), replace the cap and invert the cuvette several times to mix. This is the sample.
- Place the blank (#1) into the meter and close the meter's cap.
- Press the button. When the display shows "**Add**", "**C.2**" with "**Press**" blinking the meter is zeroed.
- Remove the cuvette.
- Insert the second cuvette (#2) into the meter and press the button.
- The meter directly displays the concentration of magnesium hardness ($CaCO_3$) in ppm. The meter automatically turns off after 10 minutes.



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