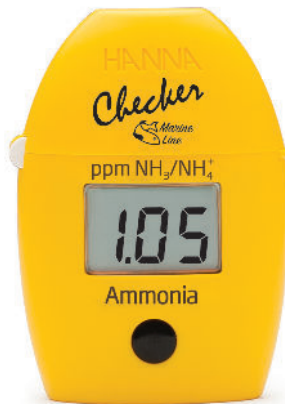


HI784 Marine Ammonia (NH₃/NH₄⁺)



Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.



Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

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 checker's performance. For your and the checker's safety do not use or store it in hazardous environments.

Warranty

HI784 Checker HC is warranted for a period of one year against defects in workmanship and materials when used for its 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 checker is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any product, make sure it is properly packaged for complete protection.

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

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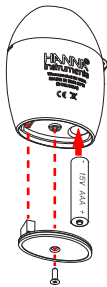
Battery Replacement

To save the battery, the checker shuts down after 20 minutes of non-use and 10 minutes after reading.

A fresh battery lasts for a minimum of 5000 measurements. When the battery is drained, the instrument displays "bAd" then "bAt", and turns off.

To replace the battery, follow the next steps:

1. Press and hold the ON/OFF button to turn the checker off.
2. Turn the instrument upside down and use a screwdriver to unfasten the screw and remove the battery cover.
3. Remove the old battery, replace it with a new 1.5V AAA battery, inserting the negative end first.
4. Replace the battery cover, fasten and tighten the screw.



Accessories

Reagent Sets

HI784-25 Reagents for 25 Marine Ammonia tests

Other Accessories

HI784-11	Marine Ammonia certified standard kit
HI731315	Glass cuvette and cap for Checker® HC colorimeters (2 pcs.)
HI731318	Cloth for wiping cuvettes (4 pcs.)
HI740028P	1.5V AAA battery set (12 pcs.)
HI740143	1 mL graduated syringe (6 pcs.)
HI740144P	Plastic pipette tip (10 pcs.)
HI740157P	Transfer pipette (20 pcs.)
HI93703-50	Cuvette cleaning solution, 250 mL

Certification

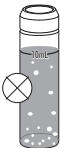
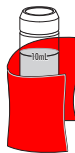
All Hanna® instruments conform to the CE European Directives and UK Standards.

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.



Tips for an Accurate Measurement

- Ensure the sample does not contain any debris.
- Whenever the cuvette is placed into the checker, it must be dry outside and free of fingerprints, oil and dirt.
- Wipe the cuvette thoroughly with HI731318 microfiber cleaning cloth 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 too long after reagent has been added, as accuracy will be affected.
- Discard the sample immediately after the reading has been taken or the glass might become permanently stained.
- Prepare sample cuvette immediately after collecting sample from tank. Ammonia is volatile and will dissipate if stored in a bottle before analysis, causing low measurements.



Calculating Unionized Toxic Ammonia

This method measures NH₃/NH₄⁺. To determine the toxic NH₃ portion, use the table to determine the percentage of toxic NH₃. Levels of toxic NH₃ greater than 0.01 ppm have a negative effect on fish. Multiply total ammonia (NH₃/NH₄⁺) by the percent unionized ammonia from the table to determine unionized toxic ammonia.

Example: pH 8.0, Temperature: 24 °C (75 °F), NH₃/NH₄⁺ 1.00 ppm
 Unionized toxic ammonia: 1.00 ppm x (5.0 ÷ 100) = 0.05 ppm

Percentage of Unionized Ammonia (NH₃)

pH	21 °C (70 °F)	24 °C (75 °F)	26 °C (79 °F)	29 °C (84 °F)
7.6	1.7	2.1	2.4	2.9
7.8	2.6	3.2	3.7	4.5
8.0	4.1	5.0	5.8	7.0
8.2	6.3	7.7	8.8	11
8.4	9.7	12	13	16
8.6	15	17	20	23
8.8	21	25	28	32

Dear Customer,

Thank you for choosing a Hanna Instruments® product. Please read this instruction manual carefully before using the Checker® HC handheld colorimeter. 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 Checker HC handheld colorimeter and accessories from the packing material and examine it carefully. If you require any further information, please contact Hanna Instruments technical support team.

Each HI784 is delivered in a case with custom insert and is supplied with:

- Marine Ammonia reagent starter kit (reagents for 10 tests)
- Sample cuvette and cap (2 pcs.)
- Plastic refilling pipette (1 pc.)
- 1 mL syringe with tip (1 pc.)
- 1.5V AAA Alkaline battery (1 pc.)
- Quick-reference guide
- Instruction manual

Note: Save all packing material until you are sure that the Checker HC handheld colorimeter works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

General Description & Intended Use

HI784 Marine Ammonia handheld checker is designed to determine the concentration of ammonia in saltwater aquariums and marine biology applications.

HI784 features a single-button operation system and is easy to use.

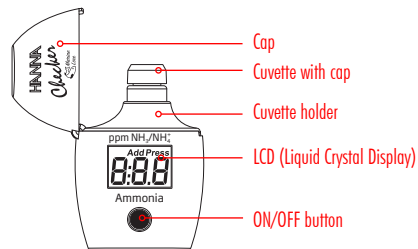
The large LCD is easy to read and the auto shut-off feature assures the battery will not be drained.

Specifications

Range	0.00 to 2.50 ppm (mg/L) NH ₃
Resolution	0.01 ppm (mg/L)
Accuracy	±0.05 ppm ±5% of reading @ 25 °C (77 °F)
Light source	Light Emitting Diode @ 610 nm
Light detector	Silicon photocell
Method	Adaptation of the Salicylate Method. The reaction between Ammonia and Ammonium and the reagent causes a blue-green tint in the sample.
Environment	0 to 50 °C (32 to 122 °F); max. 95% RH non-condensing Prepared sample cuvette (sample plus reagents) must be 18 to 29 °C (65 to 85 °F)*.
Battery type	1.5V AAA Alkaline
Auto shut-off	After 20 minutes of non-use and 10 minutes after reading
Dimensions	86.0 x 61.0 x 37.5 mm (3.4 x 2.4 x 1.5")
Weight	64 g (2.3 oz)

* Warm or cool prepared cuvettes if needed.

Functional Description & LCD Display



Measurement Procedure

1. Press the ON/OFF button to turn the checker on. All segments will be displayed for a few seconds, followed by "Add", "C.1" with "Press" blinking.

2. Preparing the cuvette for "C.1" measurements:

- Use the 1 mL syringe to dispense 1 mL of HI784A-0 reagent into a clean, dry cuvette.

CAUTION: HI784A-0 is corrosive! Dispense liquid slowly and avoid contact with skin and eyes!

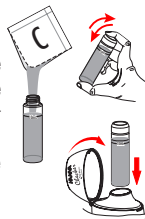
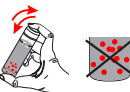
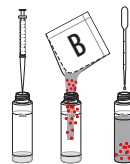
- Using scissors, open one packet of HI784B-0 reagent along the dotted line. Push the two corners together to make a spout. Add the content of the packet to the cuvette.
- Use the pipette to fill the cuvette to the 10 mL mark with unreacted sample.

- Screw the cap onto the cuvette and shake gently until the powder is completely dissolved (60-90 seconds). Do NOT shake vigorously — this will cause more air bubbles! For the most accurate reading, ensure all reagent is dissolved and there are no visible bubbles. Ensure the outside of the cuvette is dry and clean.

- Let the cuvette stand for 30 seconds. This allows complete dissipation of micro-bubbles.
- Insert the cuvette into the checker and close the cap.
- Press the ON/OFF button. When the display shows "Add", "C.2" with "Press" blinking, the checker is zeroed. Remove the cuvette.

3. Preparing the cuvette for "C.2" measurements:

- Unscrew the cuvette cap. Using scissors, open one packet of HI784C-0 along the dotted line. Push the two corners together to make a spout. Add the content of the packet to the cuvette.
- Replace the cap and shake gently to dissolve the powder (30 seconds).
- Insert the cuvette into the checker and close the cap.



- Press and hold the ON/OFF button. The display will show the countdown prior to the measurement. Alternatively, wait 15 minutes and press the button once to measure.



Note: For samples with less than 1.00 ppm, the reaction is complete after 10 minutes. Users may wait 10 minutes and press the ON/OFF button once to measure.

- When the timer ends, the checker will perform the reading. The instrument displays the ammonia/ammonium concentration in ppm NH₃. The checker automatically turns off 10 minutes after reading.
- To calculate the unionized ammonia (NH₃) concentration, use the conversion table on the reverse side.

Errors & Warnings

The checker shows clear warning messages when erroneous conditions appear and when measured values are outside the expected range. The information below provides an explanation of the errors and warnings, and the recommended action to be taken.

Light High: There is an excess amount of ambient light reaching the detector. Please check preparation of zero cuvette.



Light Low: There is not enough light to perform a measurement. Please check the preparation of the zero cuvette.



Under Range: Minimum concentration value displayed blinking indicates the measured value is outside the limits of the method. Verify that the sample does not contain any debris, and the preparation of the sample cuvette.



Over Range: Maximum concentration value displayed blinking indicates the measured value is outside the limits of the method. Verify the preparation of the sample cuvette. Dilute the sample and repeat the measurement.



Battery Low: Battery level is too low for the checker to function properly. Replace the battery with a new one.



Drained Battery: The battery is drained and must be replaced. Replace the battery with a new one and restart the checker.

