

Instruction Manual

HI 3839 Hydroxide Test Kit

HANNA
instruments
www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Product. Please read the instructions carefully before using the chemical test kit. It will provide you with the necessary information for correct use of the kit.

Remove the chemical test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- Two calibrated vessels (10 and 50 mL);
- Reagent 1 (10 mL);
- Reagent 2 (120 mL);
- Calibrated syringe and plunger.

Note: Any damaged or defective item must be returned in its original packing materials.

ISTR3839R2 03/00 PRINTED IN ITALY

SPECIFICATIONS

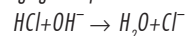
Range	0 to 1 g/L (ppt) OH ⁻ 0 to 10 g/L (ppt) OH ⁻
Analysis Method	Acid titration using phenolphthalein indicator
Sample Size	5 mL and 50 mL
Number of Tests	110 (average)
Case Dimensions	200x120x60 mm (7.9x4.7x2.4")
Shipping Weight	460 g (17.2 oz.)

SIGNIFICANCE AND USE

In electrolytic copper plating, an alkaline solution is required in the bath. The process involves hydroxide ions reacting with formaldehyde to form hydride ions. These ions then reduce copper. The monitoring of hydroxide concentration in the bath is essential to optimize the performance of the bath. The Hanna Test Kit measures hydroxide levels using a fast and easy titrametric method. The portable case gives user the versatility to use the kit practically anywhere.

CHEMICAL REACTION


The hydroxide ion concentration is determined by a titration. The hydroxide ions react with hydrochloric acid, until an endpoint is reached, where all the hydroxide ions have reacted. The addition of phenolphthalein determines this endpoint, by changing from pink to a colorless solution.

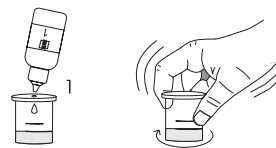


INSTRUCTIONS

READ ALL THE INSTRUCTIONS BEFORE USING THE TEST KIT

Determination in the 0 to 10 g/L Hydroxide

- Remove the cap from the small plastic vessel. Rinse the plastic vessel with water sample, fill to the 5 mL mark and replace the cap. 
- Add 1 drop of Reagent 1 through the cap port, and mix carefully swirling the vessel in tight circles. The solution turns pink or red, if hydroxide ions are present.



- Take the titration syringe and push plunger completely into the syringe. Insert tip into Reagent 2 solution and pull plunger out until the lower edge of the plunger seal is on the 0 mL mark of the syringe.


Note: Push and twist pipet tip onto tapered end of syringe ensuring an airtight fit.

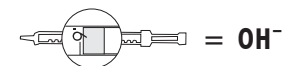
- Place syringe tip into the cap port of the plastic vessel and slowly add the titration solution drop by drop, swirling to mix after each drop. Continue adding titration solution until the solution in the plastic vessel turns colorless.
- Read off the milliliters of titration solution from the syringe scale, and multiply by 10 to obtain g/L (ppm) OH⁻.



Determination in the 0 to 1 g/L Hydroxide

If results are lower than 1 g/L, the precision of the test can be improved as follows.

- Remove the cap from the large plastic vessel. Rinse the plastic vessel with water sample, fill to the 50 mL mark and replace the cap. 
- Proceed with the test as described before. Read the result directly off the syringe to obtain g/L hydroxide in the aqueous sample.



ACCESSORIES

HI 3839-100 Spare reagents (100 tests)

REFERENCES

1987 Annual Book of ASTM Standard, Volume 11.01 Water (1), pages 519-521.

HEALTH AND SAFETY

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