Instruction Manual

HI 3815
Chloride Test Kit

HANNA instruments

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:

- Reagent 1, 1 bottle with dropper (15 mL);
- Reagent 2, 1 bottle with dropper (30 mL);
- Reagent 3, 1 bottle (120 mL);
- 2 calibrated vessels (10 and 50 mL);
- 1 calibrated syringe.

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

ISTR3815R1 10/99 PRINTED IN ITALY

SPECIFICATIONS

Range	0 to 100 mg/L (ppm) Cl^- 0 to 1000 mg/L (ppm) Cl^-
Smallest Increment	1 mg/L [in the 0-100 mg/L range] 10 mg/L [in the 0-1000 mg/L range]
Analysis Method	Mercuric nitrate titration
Sample Size	5 mL and 50 mL
Number of Tests	110 (average)
Case Dimensions	200x120x60 mm (7.9x4.7x2.4")
Shipping Weight	460 g (1 lb.)

SIGNIFICANCE AND USE

Chloride ions are one of the major inorganic anions in water and wastewater. Although high concentrations of chloride in water are not known to be toxic to humans, the regulation of its concentration is mainly due to taste. It is essential to monitor chloride concentration in boiler systems to prevent damage of metal parts. In high levels, chloride can corrode stainless steel and be toxic to plant life.

The Hanna Chloride Test Kit is equipped with all you need to determine chloride level of water. The kit is quick, easy to use and portable. The design makes the kit easy to handle and, except for Reagent 3, practically prevents accidental injury or damage due to spills.

Note: mg/L is equivalent to ppm (parts per million).

CHEMICAL REACTION

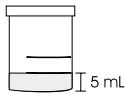
The chloride level in mg/L (ppm) is determined by a mercuric nitrate titration. The pH is lowered to approximately 3 by addition of nitric acid. Mercuric ions react with chloride ions to form mercuric chloride. When excess mercuric ions are present, it complexes with diphenylcarbazone to form a purple solution. The color change from yellow to purple determines the end point of this titration.

INSTRUCTIONS

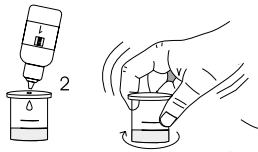
READ ALL THE INSTRUCTIONS BEFORE USING THE TEST KIT
LOOK AT THE BACK PAGE FOR THE ILLUSTRATED PROCEDURE

High Range – 0 to 1000 mg/L Chloride

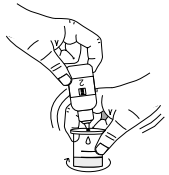
- Remove the cap from the small plastic vessel. Rinse the plastic vessel with water sample, fill to the 5 mL mark and replace the cap.



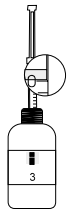
- Add 2 drops of Reagent 1 through the cap port, and mix carefully swirling the vessel in tight circles. The solution will become a violet color.



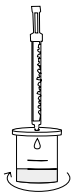
- While swirling the vessel, add Reagent 2 dropwise until the solution turns yellow.



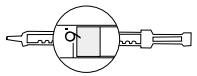
- Take the titration syringe, and push the plunger completely into the syringe. Insert tip into Reagent 3 solution and pull the plunger out until the lower edge of the plunger seal is on the 0 mL mark of the syringe.



- Place the syringe into the cap of the plastic vessel and slowly add the titration solution dropwise, swirling to mix after each drop. Continue adding titration solution until the solution in the plastic vessel changes from yellow to violet.



- Read off the milliliters of titration solution from the syringe scale and multiply by 1000 to obtain mg/L (ppm) chloride.

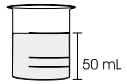


x 1000 = Cl^-

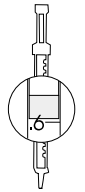
Low Range – 0 to 100 mg/L Chloride

If the result is lower than 100 mg/L, the precision of the test can be improved by following the steps below.

- Remove the cap from the large plastic vessel. Rinse the plastic vessel with the water sample, fill to the 50 mL mark and replace the cap.



- Proceed with the test as for high range measurement.
- Read off the milliliters of titration solution from the syringe scale and multiply by 100 to obtain mg/L (ppm) chloride.



x 100 = Cl^-

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

REFERENCES

Official Methods of Analysis, A.O.A.C., 14th Edition, 1984, p. 625.

Standard Methods for the Examination of Water and Wastewater, 16th Edition, 1985, pages 288-290.

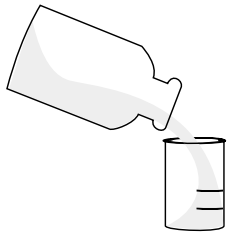
HEALTH AND SAFETY

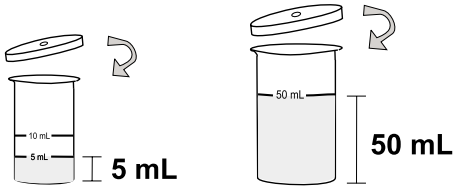
The chemicals contained in this test kit may be hazardous if improperly handled. Read Health and Safety Data Sheets before performing the test.

HANNA instruments

HI 3815 CHLORIDE TEST KIT

1

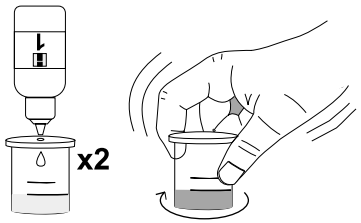




0-1000 mg/L

0-100 mg/L

2



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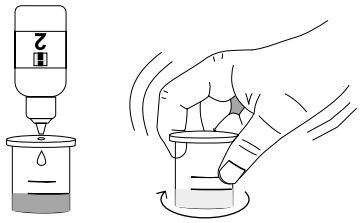
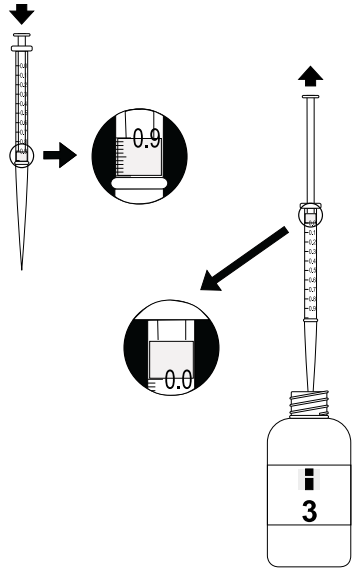


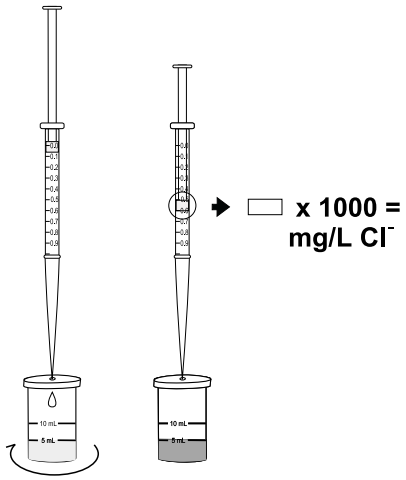
until solution turns yellow

4



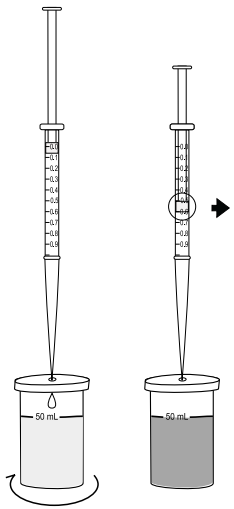
5

5 mL sample



x 1000 = mg/L Cl^-

50 mL sample



x 100 = mg/L Cl^-