Instruction Manual

HI 38018
Free Chlorine Low and Medium Range
Test Kit with Checker Disc

HANNA instruments

www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Product.

Please read the instruction sheet carefully before using the test kit. It will provide you with the necessary information for correct use of the kit. If you need additional information, do not hesitate to e-mail us at tech@hannainst.com.

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:

- HI 93701-0 Free Chlorine Reagent, packet powder (200 pcs);
- Demineralizer Bottle with filter cap for about 12 liters of deionized water (depending on the hardness level of water to be treated);
- 1 checker disc (containing a mirror, a mirror holder and the disc);
- 2 glass vials with caps;
- 1 plastic pipette (3 mL).

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

ISTR38018 02/00 PRINTED IN ITALY

SPECIFICATIONS

Range	0 to 0.7 mg/L (ppm) as Chlorine (LR) 0 to 3.5 mg/L (ppm) as Chlorine (MR)
Smallest Increment	LR: 0.02 mg/L MR: 0.1 mg/L
Analysis Method	Colorimetric
Sample Size	10 mL (LR), 5 mL (MR)
Number of Tests	200
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	647 g (22.8 oz.)

SIGNIFICANCE AND USE

Chlorine is the most commonly used water disinfectant in applications that vary from treatment of drinking water and wastewater, pool and spa sanitization, to food processing and sterilization. Chlorine present in water binds with bacteria, leaving only a part of the original quantity (free chlorine) to continue its disinfecting action. If the free chlorine level is improper with respect to pH, water will have an unpleasant taste and odor and the disinfecting potential of the chlorine will be diminished.

Free chlorine reacts with ammonium ions and organic compounds to form chlorine compounds resulting in diminished disinfecting capabilities compared with free chlorine. Chlorine compounds together with chloramines form combined chlorine. Combined chlorine and free chlorine together result in total chlorine.

While free chlorine has a much higher disinfectant potential, combined chlorine has a much higher stability and has a lesser volatility.

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

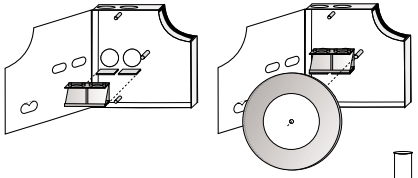
CHEMICAL REACTION

The reaction between chlorine and the DPD reagent causes a pink tint in the sample which is proportional to the chlorine concentration.

INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

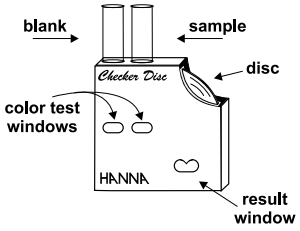
- To measure free chlorine in the 0-0.7 mg/L range, verify that the mirror, its holder and the disc are pre-installed in the checker disc. If not, install them as shown in the figure.



- Use the pipette to fill each glass vial with 10 mL of sample (up to the mark).



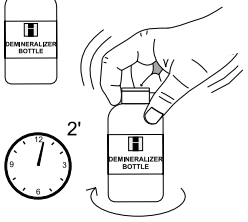
- Insert one of the vials into the left hand opening of the checker disc. This is the blank.



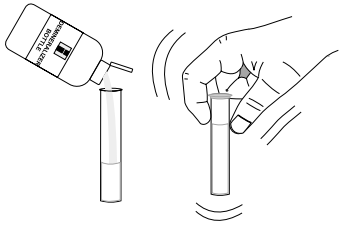
- Remove the cap and fill the Demineralizer Bottle with tap water.



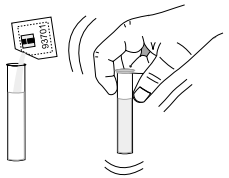
- Replace the cap and shake gently for at least 2 minutes. The demineralized water is now ready.



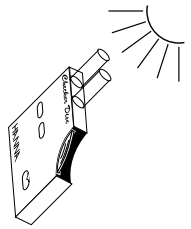
- Flip open the top of the Demineralizer Bottle cap. By gently squeezing the bottle, add demineralized water to the other vial up to the 20 mL mark. Replace the cap and shake to mix.



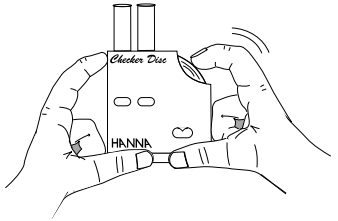
- Remove the cap and add 1 packet of HI 93701-0 reagent. Replace the cap and mix. This is the reacted sample.



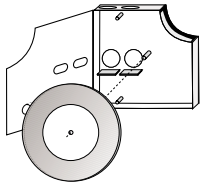
- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.
- Hold the checker disc so that a light source illuminates the samples from the top.



- Keep the checker disc at a distance of 30-40 cm (12-16") from the eyes to match the color. Rotate the disc while looking at the color test windows and stop when you find the color match. Read the value in the result window and divide it by 5 to obtain mg/L (or ppm) of Chlorine.



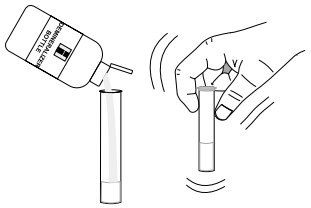
- To measure free chlorine in the 0-3.5 mg/L range, remove the disc, mirror and its holder, if pre-installed. Then install just the disc as shown here.



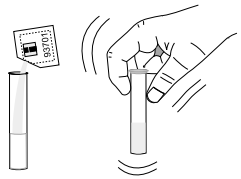
- Use the pipette to fill each glass vial with 5 mL of sample (up to the mark) and insert one of them into the left hand opening of the checker disc. This is the blank.



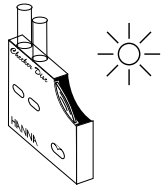
- Add to the other vial demineralized water up to the 10 mL mark and shake to mix.



- Add 1 packet of HI 93701-0 reagent. Replace the cap and mix. This is the reacted sample.



- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.
- Hold the checker disc so that a light source illuminates the samples from the back of the windows.



- Keep the checker disc at a distance of 30-40 cm (12-16") from the eyes to match the color. Rotate the disc while looking at the color test windows and stop when you find the color match. Read the value in the result window directly in mg/L (or ppm) of Chlorine.

For best results: Perform the reading three times and take the average value (divide by 3 the sum of the three numbers). Intensely colored samples will make the color matching difficult and they should be adequately treated before performing the test. Suspended matter in large amounts should be removed by prior filtration.

Caution: Ultraviolet radiation may cause fading of colors. When not in use, keep the disc protected from light, in a cool and dry place.

Interferences: bromine, iodine, fluorine, ozone, oxidized manganese and chromium.

REFERENCES

Adaptation of the EPA recommended DPD method 330.5.

HEALTH AND SAFETY

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