Instruction Manual

HI 38041
Iron High Range Test Kit with Checker Disc

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. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or view our worldwide contact list at www.hannainst.com.

Each kit is supplied with:

- **HI 3834-0** Reagent, packets (100 pcs);
- Deionized Water, 1 bottle (500 mL);
- 1 checker disc (containing the 38040 disc);
- 2 glass vials with caps;
- 1 plastic pipette (3 mL);
- 1 long plastic pipette.

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

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SPECIFICATIONS

Range	0 to 10.0 mg/L (ppm) as Fe
Smallest Increment	0.2 mg/L (ppm) Fe
Analysis Method	Colorimetric
Sample Size	5 mL
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	980 g (34.6 oz)

SIGNIFICANCE AND USE

Generally, ground and surface water contains no more than 1 mg/L (ppm) iron; but due to mining and industrial drainage, higher levels of iron have been observed. Iron in water appears to be more of a nuisance than a hazard. The presence of iron can stain laundry and give water a bittersweet taste.

The Hanna Test Kit determines the iron concentration in water by conversion of the ferrous (Fe^{2+}) state. The test is fast and easy. The checker disc makes it simple to obtain the iron level in water.

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

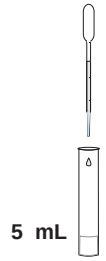
CHEMICAL REACTION

Iron can exist as ferrous (Fe^{2+}) or ferric (Fe^{3+}) ions. The Hanna Test Kit determines total iron levels in water via a colorimetric method. First all ferric ions are reduced by sodium sulfite to ferrous ions. Phenanthroline complexes with ferrous ion to form an orange colored solution. The color intensity of the solution determines the iron concentration.

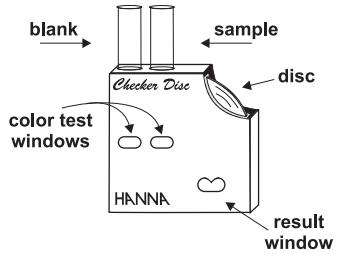
INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

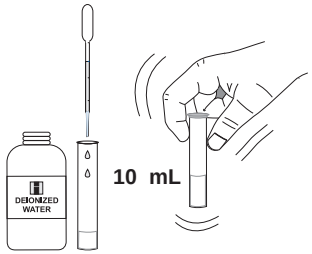
- Using the plastic pipette, fill each glass vial with 5 mL of sample (up to the mark).



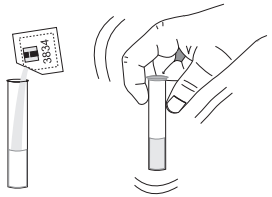
- Insert one of the vials into the left hand opening of the checker disc. This is the blank.



- Use the long plastic pipette to add to the other vial deionized water up to the 10 mL mark. Replace the cap and shake.

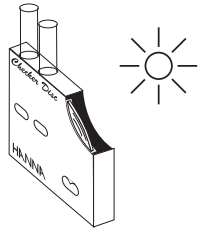


- Remove the cap and add 1 packet of **HI 3834-0** reagent. Replace the cap and shake to mix.

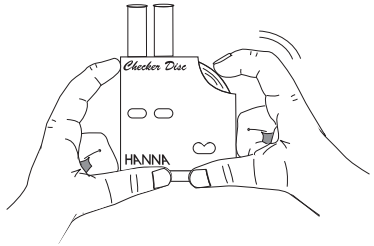


- Wait for 3 minutes to allow reaction to occur. This is the reacted sample.

- 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, while having a uniform background (e.g. a white sheet). 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 multiply it by 2 to obtain mg/L (or ppm) of Iron.



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: Molybdate and Molybdenum above 50 ppm, calcium above 10000 ppm (as $CaCO_3$), magnesium above 100000 ppm, chloride above 185000 ppm.

REFERENCES

1987 Annual Book of ASTM Standard, Volume 11.01 Water (1), pages 531-535.

Standard Methods for the Examination of Water and Wastewater, 16th Edition, pages 215-219.

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.