

## Instruction Manual

# HI 38042 Manganese Low Range Test Kit



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](mailto: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 93709A-0 Citrate Buffer Reagent, packets (100 pcs);
- HI 93709B-0 Sodium Periodate Reagent, packets (100 pcs);
- 1 checker disc (containing a mirror, a mirror holder and the 38072 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.

## SPECIFICATIONS

Range	0 to 3.0 mg/L (ppm) as Mn
Smallest Increment	0.2 mg/L (ppm) Mn
Analysis Method	Colorimetric
Sample Size	20 mL
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	560 g (19.8 oz.)

## SIGNIFICANCE AND USE

Manganese is not present in natural waters but it is found in various salts and minerals, frequently associated with iron compounds. Manganese salts are used as fertilizer additives, in ferroalloys (in steel manufacture), in non-ferrous alloys as it improves their corrosion resistance and hardness.

Manganese is not considered to be toxic to man and aquatic life and it is ingested as a trace nutrient, both in food and water. Nonetheless manganese has been limited in drinking water since it causes tenacious stains to laundry and because it produces objectionable tastes in beverages. Manganese is commonly found in domestic wastewater, industrial effluents and receiving streams.

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

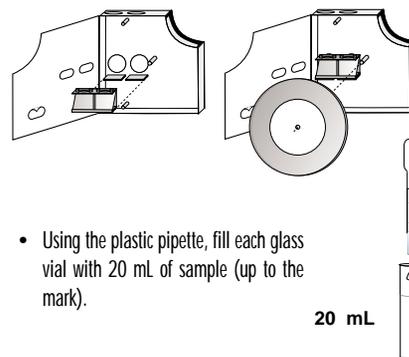
## CHEMICAL REACTION

The reaction between manganese and reagents causes a violet tint in the sample which is proportional to the manganese concentration.

## INSTRUCTIONS

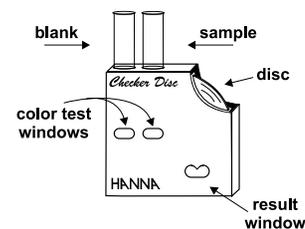
READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

- 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.



- Using the plastic pipette, fill each glass vial with 20 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.



- Add to the other vial 1 packet of HI 93709A-0 reagent. Replace the cap and swirl to mix.

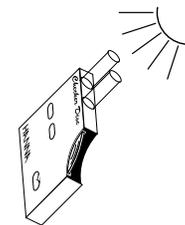
- Remove the cap and add 1 packet of HI 93709B-0 reagent. Replace the cap and swirl to mix.

- Wait for 1 minute and 30 seconds to allow reaction to occur. This is the reacted sample.

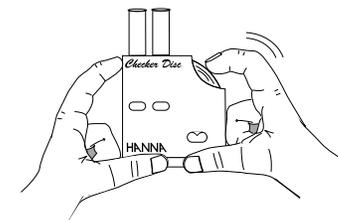


- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.

- Hold the checker disc so that a light source illuminates the samples from the top.



- Keep the checker disc at a distance of 30-40 cm (12-16") 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 3 to obtain mg/L (or ppm) of Manganese.



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: Calcium above 700 ppm, magnesium above 100000 ppm, chloride above 7000 ppm, iron above 5 ppm.

## REFERENCES

Adaptation of the Periodate Oxidation Method, *Standard Methods for the Examination of Water and Wastewater*, 18<sup>th</sup> edition.

## 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.