

# Instruction Manual

## HI 38066 Silica Low Range Test Kit



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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 93705A-0 Silica Reagent, 1 bottle with dropper (25 mL);
- HI 93705B-0 Silica Reagent, packets (100 pcs);
- HI 93705C-0 Silica Reagent, packets (100 pcs);
- 1 checker disc (containing a mirror, a mirror holder and the 38066 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 1.0 mg/L (ppm) as SiO <sub>2</sub>
Smallest Increment	0.02 mg/L (ppm) SiO <sub>2</sub>
Analysis Method	Colorimetric
Sample Size	20 mL
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	580 g (20.4 oz)

### SIGNIFICANCE AND USE

Silicon is not free in nature, but rather as silica (SiO<sub>2</sub>) in crystalline forms, combined with other oxides and metals in a variety of silicates. Silicon is usually reported as silica when rocks, sediments, soil and water are analyzed. Silica is only slightly soluble in water; solubility and form of silica in water depend on pH of water and on the minerals, containing silica, in contact with water. The silica content of natural water is in the 5 to 25 ppm range. It is important to estimate silica concentration in case of some industrial installation such as steam generation and cooling water systems.

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

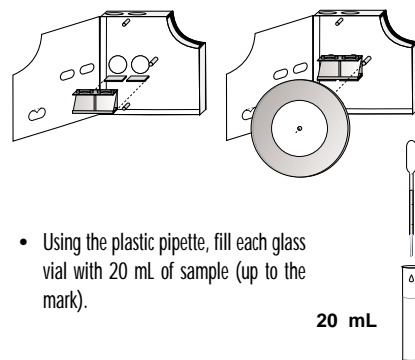
### CHEMICAL REACTION

Determination of silica concentration is an adaptation of the ASTM D859 method of the heteropoly blue method. The reaction between silica and reagents causes a blue tint in the sample which is proportional to the silica concentration.

### INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

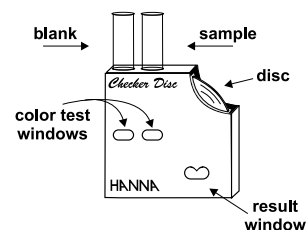
- Verify that the mirror, its holder and the disc are pre-installed in the checker disc. If not, install them as shown in the figure.



- Using the plastic pipette, fill each glass vial with 20 mL of sample (up to the mark).

20 mL

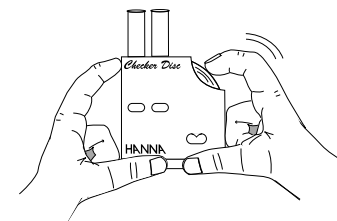
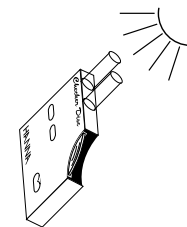
- Insert one of the vials into the left hand opening of the checker disc. This is the blank.



- Add to the other vial 6 drops of HI 93705A-0 reagent. Replace the cap, shake and wait for 5 minutes.
- Remove the cap, add 1 packet of HI 93705B-0 reagent. Replace the cap, shake and wait for 2 minutes.
- Remove the cap and add 1 packet of HI 93705C-0 reagent. Replace the cap and shake until the powder has completely dissolved.

- Wait for 5 minutes to allow reaction to complete. 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 directly in mg/L (or ppm) of Silica.



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: phosphate above 50 ppm, sulfide, high dissolved salts concentration, high concentration of iron.

### REFERENCES

Adaptation of the ASTM D859 method of the Heteropoly Blue Method.

### 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.