

Method

Silica (SiO₂) is the oxide of silicon, the second most abundant element in the earth's crust. Silica is present as silicates in most natural waters. Typical concentrations lie between 1 and 30 mg/L. Higher concentrations may exist in brackish waters and brines. The silica content of water should be determined prior to its use in a variety of industrial applications. Silica can form a harmful scale on equipment and heat transfer surfaces, particularly steam turbine blades.

The Heteropoly Blue Method

References: APHA Standard Methods, 23rd ed., Method 4500-SiO₂ D-1997. ASTM D 859-05, Silica in Water. USEPA Methods for Chemical Analysis of Water and Wastes, Method 370.1 (1983).

CHEMetrics' test method determines *molybdate reactive silica*. The heteropoly blue chemistry is employed. Silica reacts with ammonium molybdate under acidic conditions to produce heteropoly acids, which are then reduced to form a blue color. Phosphate interferences are masked with the addition of citric acid. Results are expressed as ppm (mg/L) SiO₂.

Visual Kits

Range: 0-0.20 ppm MDL: 0.02 ppm / Method: Heteropoly Blue	
ULR CHEMetrics Kit	Cat# K-9011
ULR CHEMetrics Refill, 30 ampoules, Shelf life 18 months	R-9011
Neutralizer Solution Pack, six 10 mL bottles	A-9000 ¹
Activator Solution Pack, six 20 mL bottles	A-9001 ¹
Comparator 0, 0.02, 0.04, 0.06, 0.08, 0.12, 0.16, 0.20 ppm	C-9011
Kit comes in a cardboard box and contains everything needed to perform 30 tests: Refill, Comparator, Neutralizer Solution, Activator Solution, 25 mL sample cup, sample cup top and instructions.	

Range: 0-1 & 1-10 ppm MDL: 0.05 ppm / Method: Heteropoly Blue	
CHEMetrics Kit	Cat# K-9010
CHEMetrics Refill, 30 ampoules, Shelf life 11 months	R-9010 ²
Neutralizer Solution Pack, six 10 mL bottles	A-9000 ¹
Activator Solution Pack, six 20 mL bottles	A-9001 ¹
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-9001
High Range Comparator, Shelf life 18 months 1, 2, 3, 4, 5, 6, 7, 8, 10 ppm	C-9010
Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparators, Neutralizer Solution, Activator Solution, 25 mL sample cup, sample cup top and instructions.	

Instrumental Kit

Multi-Analyte Photometers V-2000 / V-3000 (See page 14 for instrumental features)

Range: 0-10.00 ppm / Spec: 0-4.00 ppm Method: Heteropoly Blue	
Vacu-vials Kit	Cat# K-9003
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Neutralizer Solution, Activator Solution, 25 mL sample cup, sample cup top, ampoule blank and instructions.	

Vacu-vials Kits require the use of a CHEMetrics Direct-Readout Photometer (photometers sold separately) or a spectrophotometer capable of accepting a 13 mm diameter round cell. See page 14 for details.

Components and Accessories	
Description	Cat#
Sample Cup Pack, 25 mL (6 ea)	A-0013
Sample Cup Top Pack for 25 mL Cup (6 ea)	A-0014
Ampoule Blank Pack (5 ea)	A-0023
* Sample Zeroing Accessory Pack	A-0503

¹ The accessory pack supplies enough solution to perform at least 200 tests.

² Shelf life is based on storage at room temperature and in the dark. This shelf life can be extended by 18 months if the ampoules are stored in the refrigerator when not in use.

* For use when testing colored or turbid samples. See page 13 for details.

Instructions and SDSs are posted on our website.

If no shelf life is listed for a product, then the shelf life is at least 1 year.