

## Method

Silica (SiO<sub>2</sub>) 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, 21<sup>st</sup> ed., Method 4500-SiO<sub>2</sub> D (2005). 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) SiO<sub>2</sub>.



## Visual Kits

Range: 0-0.20 ppm  
MDL: 0.02 ppm / Method: Heteropoly Blue

	Cat#
<b>ULR CHEMetrics Kit</b>	<b>K-9011</b>
ULR CHEMetrics Refill, 30 ampoules, Shelf-life 2 months	R-9011 <sup>2</sup>
Neutralizer Solution Pack, six 10 mL bottles	A-9000 <sup>1</sup>
Activator Solution Pack, six 20 mL bottles	A-9001 <sup>1</sup>
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, instructions, and MSDS.

Range: 0-1 & 1-10 ppm  
MDL: 0.05 ppm / Method: Heteropoly Blue

	Cat#
<b>CHEMetrics Kit</b>	<b>K-9010</b>
CHEMetrics Refill, 30 ampoules, Shelf-life 11 months	R-9010 <sup>2</sup>
Neutralizer Solution Pack, six 10 mL bottles	A-9000 <sup>1</sup>
Activator Solution Pack, six 20 mL bottles	A-9001 <sup>1</sup>
Low Range Comparator 0, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0 ppm	C-9001
High Range Comparator 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, instructions, and MSDS.



## Instrumental Kits

### V-2000 Multi-Analyte Photometer

(See page 14 for instrumental features)

Range: V-2000: 0.50-10.00 ppm / Spec: 0.25-4.00 ppm  
Method: Heteropoly Blue

	Cat#
<b>Vacu-vials Kit</b>	<b>K-9003</b>

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, instructions, and MSDS.

*Vacu-vials Kits require the use of the V-2000 Photometer or a spectrophotometer capable of accepting a 13 mm diameter round cell. Instrument sold separately.*

#### Kit Components common to Silica

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

<sup>1</sup>The accessory pack supplies enough solution to perform at least 200 tests.

<sup>2</sup>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.

*Instructions and MSDS(s) are posted on our website.*

*If no shelf-life is listed for a product, then the shelf-life is at least 2 years.*

