

SILICA HR

TEST FOR SILICA IN NATURAL AND INDUSTRIAL WATERS

Photometer Method

**AUTOMATIC
WAVELENGTH
SELECTION**

0 – 150 mg/L SiO₂

Silicon, in the form of silica, is one of the earth's most abundant elements. Silicon is found widely in natural waters as colloidal silica or soluble silicates.

Silica and silicates do not normally cause any problems in water intended for domestic consumption. However, their presence is undesirable in water used in a variety of industrial applications. This is because of the tendency of such water to form a hard scale on equipment. Silica and silicate containing waters are particularly troublesome in steam generating plant such as high pressure boilers since silica scale can build up on turbine blades.

Formulations containing silicate are used in industrial water treatment, as it is necessary to control the silicate within specified levels.

The Palintest Silica test provides a simple means of measuring silica and silicate levels in natural, treated, industrial and cooling waters over the range 0 - 150 mg/L SiO₂.

Method

Sodium molybdate reacts with silica under acid conditions to produce molybdosilicic acid. Phosphate reacts in a similar manner. Interference by phosphate is prevented by introducing a reagent that destroys any molybdophosphoric acid which may form.

The reagents for the method are provided in tablet form and the test is carried out simply by adding tablets to a sample of water. The intensity of the colour produced in the test is proportional to the silica concentration and is measured using a Palintest Photometer.

Reagents and Equipment

- Palintest Silica HR No 1 Tablets
- Palintest Silica HR No 2 Tablets
- Palintest Silica PR Tablets
- Palintest Automatic Wavelength Selection Photometer
- Round Test Tubes, 10 mL glass (PT 595)

Test Procedure

- 1 Fill the test tube with sample to the 10 mL mark.
 - 2 Add one Silica No 1 tablet, crush and mix to dissolve.
 - 3 Add one Silica No 2 tablet, crush and mix to dissolve. Stand for 10 minutes to allow full colour development.
 - 4 Add one Silica PR tablet, crush and mix to dissolve. Stand for two minutes. (This stage may be omitted if the sample is known to be completely free of phosphate and chlorine).
 - 5 Select Phot 56 on Photometer.
 - 6 Take Photometer reading in usual manner (see Photometer instructions).
 - 7 The result is displayed as mg/L SiO₂.
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