Silica
Low Range (SiO_2)

Method - Colorimetric

After adding the sample into the measurement cell, some reagents are added in order to adjust the solution to the desired conditions (pH, valence's elements, etc.). Then, a blank is done to correct any temperature or turbidity disturbance. Subsequently, a last reagent is added, and it reacts with solution developing a color, which is measured using a correct wavelength. Thanks to the photometer used, the result achieves a great accuracy.

Principle of measurement

The initial reaction of the silica with the diammonium molybdate in such acidic conditions ensures that only the B-molybdosilicic acid is formed. Then the solution is treated with tartaric acid to destroy the phosphomolybdic acid, which is formed under the same conditions. Finally, the molybdomolybdic acid is reduced to the molybdenum blue complex, which absorbs at 810 nm. If some of the B-silicomolybdic acid is formed the molybdenum blue reduction product of this form absorbs at a lower wavelength, near to 730 nm. Hence, it is important to ensure that only the B-isomer be formed in the initial stage.

Advantages of the method

Because only the B-form of the silico-molybdic acid is formed the method has a fairly good sensitivity at the lower end as required by power plants and the electronics industry to ensure that the water is pure. The new formulation of Reagent #1 also speeds up the time required for the complete reaction. In addition, although the first reagent is relatively expensive very small volumes of reagent are required.

Interferences

Phosphate and Tannin interferences can be removed thanks to oxalic acid. Hydrogen sulfide and large amounts of iron are also an interference.

Specifications

Range: From 0 to 100 ppb / 500 ppb. Adjustable higher concentrations with internal dilution.
Resolution: ±2%
Repeatability: ±2%
Analysis time: around 15 minutes
Calibration: two point
LED Wavelength: 810 nm

Applications

- Power Plants
- Pure water system

And more...

Reagents consumption

- Reagent 1: 0.37 ml / analysis — 0.3L / month
- Reagent 2: 0.37 ml / analysis — 0.3L / month
- Reagent 3: 0.37 ml / analysis — 0.3L / month

Monthly consumption calculated assuming 1 analysis per hour.

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