Phosphate Low Range (PO_4^{3-})

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

Ammonium molybdate and potassium antimonyl tartrate react in acid medium with orthophosphate to form a heteropoly acid-phosphomolybdic acid-that is reduced to intensely colored molybdenum blue by ascorbic acid.

Advantages of the method

The blue color developed is so intense and it provides a high accuracy and repeatability. The method allows to measure really low values of concentrations (lower than 50 ppb).

Interferences

Arsenates concentrations as low as 0.1 mg As/L interfere with the phosphate determination. Cr (VI) and NO2- interfere to give results about 3% low at concentrations of 1 mg/L and 10 to 15% low at 10 mg/L. Sulfide (Na2S) and silicate do not interfere at concentrations of 1.0 and 10 mg/L.

Specifications

Range: From 0 to 200 ppb / 500 ppb / 1000 ppb. Higher concentrations using high range method.
Accuracy: ±2% Full Scale
Repeatability: ±2%
Resolution: 0,1 ppb
Low Limit Detection: 1ppb
Analysis time: around 12 minutes
Calibration: two point
LED Wavelength: 810 nm

Applications

- Waste Water Treatment Plants (WWTP)
- Fish farming
- Food and Beverage

And more...

Reagents consumption

- Reagent 1: 0.5 ml / analysis — 0.5L / month
- Reagent 2: 0.5 ml / analysis — 0.5L / month

Monthly consumption calculated assuming 1 analysis per hour.

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