Calcium Hardness

Method - Colorimetric**

The standard known addition (SKA) technique is used to perform the analysis. During the process, two readings are done. The difference between both and the slope found during calibration are used to calculate the concentration. Possible changes on the matrix sample are corrected due to this both lectures, as the reference to calculate the result is the relative difference of mV and not the absolute values. This avoids external interferences.

Principle of measurement

This method is a modification of the method developed by Reilly, Anal. Chem. The pH of the solution ensures that the magnesium is precipitated and hence is not titrated.

Advantages of the method

The method is specific for calcium even in the presence of excessive amounts of magnesium. As the measurement wavelength is centered on the Ca-Calcon complex and the reference wavelength is centered on the EDTA-Calcon complex, the end-point is both accurately and reproducibly measured.

Interferences

Ions that form precipitates with Ca^2 (CO_3^2 , SO_4^2 , PO_4^3 , oxalate)

Specifications **

Range: From 0 to 50 ppm /100 ppm/ 250ppm / 500 ppm/ 1000 ppm. Adjustable to lower/higher concentrations
Accuracy: ±2% FS
Repeatability: ±2% FS
Reproducibility: ±2% FS
Detection limit: Due to titration chemisty technique, the limit detection depends on the FS. It is 0.0075 * FS
Analysis time: around 20 minutes
Calibration: one point
LED Wavelength: 625 nm

Reagents consumption

- Reagent 1: 0.15 ml / analysis — 0.125L / month
- Reagent 2: 3 ml / analysis — 2.25L / month
- Titrant: 4 ml / analysis — 3.0L / month

Monthly consumption calculated assuming 1 analysis per hour.

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