



Method Summary

Determination of Total Oxidised Nitrogen in saline matrices using the Kone analysers

Scope and Range

This method is used to determine the concentration of Total Oxidized Nitrogen; i.e. nitrate and nitrite in saline water samples, and is accredited to ISO 17025.

The range of the method is 0.3mg/l - 10mg/l but may be extended by auto-dilution on the analyser.

Principle

Preparation and Extraction

Samples are filtered through a 0.45µm membrane filter prior to analysis.

Analysis

Nitrate is reduced to nitrite using an enzyme, nitrate reductase, to catalyse the reduction with the natural reducing agent of this enzyme, NADH (reduced nicotinamide dinucleotide), to drive the conversion. The nitrite ions (including those already present) are converted into a red azo-dye by reaction with sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride. When calibrated against nitrate standards using the Kone analyser, the results are expressed as TON as NO₃ in mg/l. The colour is measured at 540nm. The calibration uses a polynomial fit.

Interferences

Turbid samples will cause errors in readings, and therefore samples must be filtered prior to analysis.

Coloured samples may cause interferences, and it may be necessary to dilute samples to reduce the effect.