



## **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.

#### **References**

Standard methods for the examination of water and wastewater (APHA): Enzymatic reduction method 4500-NO<sub>3</sub>-Nitrogen (Nitrate)

EPA ATP Nitrogen, nitrate-nitrite method 353.X (Colorimetric, automated, enzymatic reduction)

#### **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 photometric analyser, the results are expressed as TON as NO<sub>3</sub> in mg/l.

#### **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.