

DETERMINATION OF NITRATE IN WATER

The Nitrate electrode is calibrated with standard solutions of known Nitrate concentration. Nitrate levels in the prepared samples can then be read either directly or from the calibration graph depending on the equipment used.

Equipment Required:

1. EDT directION D359TX pH/Ion Analyzer OR pH Meter with millivolt scale
2. Nitrate Combination I.S.E. Cat No 3021

Reagents:

Ionic Strength Adjustment Buffer (ISAB)

Standard Nitrate Solution (1000 ppm) .

Preservation Solution

0.1 mol/litre Ammonium Sulphate Reference Electrode outer fill solution.

Standards Preparation

Preservation Solution - Dissolve 0.1 gm of phenylmercuric acetate in 20 ml of dioxane. Dilute to 100 mls with distilled water. Add 1 ml of this solution to each litre of distilled water to be used to prepare all samples and standards.

ISAB - Dissolve 10.5g of A.R. grade potassium sulphate in distilled water, make up to 1 litre with distilled water. Prepare standards of 100, 10, 1 and 0.1 ppm by serial dilution of the 1000 ppm Standard Nitrate Solution. Dilute each standard with an equal volume of ISAB.

Method:

Immerse the electrodes in each of the standards in increasing concentration steps, rinsing the electrodes with distilled water between standards. Plot a graph on lin/log paper of mV response against standard concentration.

Transfer equal amounts (20ml is ideal) of sample and ISAB into a beaker, immerse the electrodes in the sample, record the mV response and plot sample concentration from the graph.

This determination may be carried out directly in concentration units by use of the "Concentration" mode on The DR359TX pH/Ion analyser.

Calculations:

Sample concentration as read from the graph or direct from the display (if an Ion analyser is used) should be multiplied by 2, to allow for sample dilution.

Interferences:

Cl⁻, NO₂⁻, CN⁻, Br⁻ and S²⁻ .