Technical Specifications for the Bromide Ion-Selective Electrode
ELIT 8271

Introduction

The Bromide Ion-Selective Electrode has a solid-state crystal membrane. The electrode is designed for the detection of bromide ions **(Br^-)** in aqueous solutions and is suitable for use in both field and laboratory applications.

The Bromide Ion is a monovalent anion .

One mole of **(Br^-)** has a mass of 79.904 grams; 1000ppm is 0.0125M

Dissolve 1.489g anhydrous potassium bromide (KBr) in 1 Litre water.

Physical Specification

Length of body excl. gold contacts	130 mm
Length of body incl. gold contacts	140 mm
Diameter of body	8 mm
DC resistance at 25°C	< 2.5 MOhm
Minimum feasible sample volume	5mls

Chemical / Operational Specifications

Preconditioning/ Standard solution *(But see General Operating Instructions)*	Normally 1000 ppm Br^- as KBr
Preconditioning time	5 minutes
Optimal pH range	pH 1 to pH 12
Temperature range	0 to 80° C
Recommended ISAB	5M $NaNO_3$ (add 2% v/v)
Recommended reference electrode	double junction **(ELIT 003)**
Reference electrode outer filling solution	0.1M CH3COOLi
Electrode slope at 25°C	54 ± 5 mV/ decade
Concentration range	0.4 to 8,000 ppm (5x10-6 to 0.1 Molar)
Response time	< 10 seconds

(Defined as time to complete 90% of the change in potential after immersion in the new solution.)

Potential drift (*in 1000 ppm*) < 3 mV/ day (8 hours)

(Measured at constant temperature and with ISE and Reference Electrode continually immersed)

Interference:

NB: All poly-crystalline membranes contain Silver Sulphide and thus will not give reliable readings if Ag or S ions are present in the solution. The Bromide ISE also has very strong interference from any Cyanide or Iodide in the solution and these ions should be absent or only present in insignificant concentrations. There is also a small interference from Chloride (Selectivity Coefficient ~0.002) and Hydroxyl (0.00003).

The SC is the approximate apparent increase in the measured concentration caused by 1 unit of the interferent. Thus the likely effect of any interfering ion (% increase) can be calculated as follows: ((expected concentration) x (SC) / (expected Br concentration)) x 100.

Cyanide and Sulphide can be removed by the addition of 1 ml of 0.1 Molar nickel sulphate per 100 ml of sample. Note that this must be added to all standards as well as samples in order to ensure the same dilution factor and similar matrix.

For more information, see: www.nico2000.net.