Technical Specifications for the Iodide Ion-Selective Electrode
ELIT 8281

Introduction

The Iodide Ion-Selective Electrode has a solid-state Crystal membrane. The electrode is designed for the detection of iodide ions **(I-)** in aqueous solutions and is suitable for use in both field and laboratory applications.

The Iodide Ion is a monovalent anion .

One mole of (I^-) has a mass of 126.905 grams; 1000ppm is 0.008M

Dissolve 1.308g anhydrous potassium iodide (KI) in 1 litre water.

Physical Specifications

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	<2.5M Ohm
Minimum feasible sample volume	5mls

Chemical / Operational Specifications

Preconditioning/ Standard solution	Normally 1000ppm I^- as KI
(But see General Operating Instructions)	
Preconditioning time	5 minutes
Optimal pH range	pH 2 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	0.06 to 12,700 ppm (5x10-7 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:

All poly-crystalline membranes contain Silver Sulphide and thus will not give reliable readings if Ag or S ions are present in the solution. Cyanide has a Selectivity Coefficient (SC) of 1 (equally sensitive to CN and I) and hence will cause a significant positive error if it is present in concentrations greater than one one-hundredth of the iodide. Other minor interferences are from Br (SC~ 0.0004) and Cl (0.000001). 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 Iodide concentration)) x 100.

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