

Technical Specifications for the Mercury Ion-Selective Electrode ELIT 8251

Introduction

The Mercury Ion-Selective Electrode has a solid-state crystal membrane. The electrode is designed for the detection of mercuric ions (Hg^{+2}) in aqueous solutions and is suitable for use in both field and laboratory applications.

The Mercuric Ion is a divalent cation .

One mole of (Hg^{+2}) has a mass of 200.590 grams; 1000ppm is 0.005M
Dissolve 1.708g mercuric nitrate monohydrate ($\text{Hg}(\text{NO}_3)_2 \cdot \text{H}_2\text{O}$) 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	< 2.5 MOhm
Minimum feasible sample volume	5mls

Chemical /Operational Specifications

Preconditioning / Standard solution <i>(But see General Operating Instructions)</i>	Normally 1000ppm Hg^{+2} as $\text{Hg}(\text{NO}_3)_2$
Preconditioning time	5 minutes
Optimal pH range	pH 0 to pH 2
Temperature range	0 to 80°C
Recommended ISAB	0.1M HNO_3 (1:1 v/v)
Recommended reference electrode	double junction (ELIT 003)
Reference electrode outer filling solution	0.1M CH_3COOLi
Electrode slope at 25°C	26±3 mV/ decade
Concentration range	0.2 to 20,100 ppm (1×10^{-6} to 0.1 Molar)
Response time	<10 seconds
<i>(Defined as time to complete 90% of the change in potential after immersion in the new solution.)</i>	
Potential drift <i>(in 1000 ppm)</i>	< 3 mV/ day (8 hours)
<i>(Measured at constant temperature and with ISE and Reference Electrode continually immersed)</i>	

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.

Note very low pH range (0 to 2) for this electrode

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