ISE DATASHEET

Mercury Ion

ELIT 8251 · ELIT Ion Selective Electrode · Cation

Hg2+

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PHYSICAL SPECIFICATIONS

Body Length	130 mm (excl. contact) / 140 mm (incl.)
Body Diameter	8 mm
DC Resistance (25°C)	< 2.5 MOhm
Min. Sample Volume	5 ml

ELECTRODE SPECIFICATIONS

Electrode Model	ELIT 8251
Ion	Mercury (Hg^{2+})
Ion Type	Cation
Valence	2
Membrane Type	Solid-state crystal membrane
Molar Mass	200.59 g/mol
1000 ppm equiv.	0.005 M

OPERATIONAL PARAMETERS

Preconditioning	1000 ppm Mercury standard
Preconditioning Time	Min. 5 minutes
Detection Range	0.2 to 20,100 ppm (1×10^{-6} to 0.1 M)
Electrode Slope	26 ± 3 mV/decade
pH Range	pH 0 to 2
Temperature Range	0 to 80 °C
Response Time	< 10 seconds (90% response)
Potential Drift	< 3 mV/day in 1000 ppm (8 hours)

REAGENTS & STANDARDS

Reference Electrode	Double junction lithium acetate (ELIT 003). Outer filling solution: 0.1M CH_3COOLi.
ISAB / Buffer	0.1M HNO_3 — 1:1 v/v (mandatory — add 50% by volume to all standards and samples).
Standard Prep	Dissolve 1.708 g mercuric nitrate monohydrate ($Hg(NO_3)_2 \cdot H_2O$) in 1 litre deionised water.

TYPICAL APPLICATIONS

- Environmental Monitoring
- Industrial Effluent Monitoring
- Water Quality Monitoring
- Research

SELECTIVITY COEFFICIENTS (INTERFERENCE DATA)

Interfering Ion	Selectivity Coeff.	Note
Silver (Ag^+) / Sulphide (S^{2-})	very high	All poly-crystalline membranes — unreliable in presence of Ag or S ions.

SC = approximate apparent increase in measured concentration caused by 1 unit of interferent. Error% = ((interferent conc × SC) / target conc) × 100.

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CALIBRATION & SAMPLE PREPARATION

Calibrate with 1000, 100, 10, 1, 0.1 ppm Hg solutions. ISAB is mandatory — add 50% by volume 0.1M HNO_3 to ALL standards and samples before measurement.

Take 25 ml sample and add 25 ml of 0.1M HNO_3 ISAB before measurement. ISAB addition is essential to maintain pH within the narrow 0–2 operating range.

ANALYTICAL NOTES

- Note extremely low and narrow pH range (0 to 2) — the most restrictive of all ELIT ISEs.
- ISAB (0.1M HNO_3) must be added 1:1 to all standards and samples — this is not optional.
- Divalent cation — slope ~26 mV/decade.

SAFETY & HAZARDS

! Mercury compounds are highly toxic — handle with appropriate PPE and dispose of waste according to local regulations.

! This electrode has an extremely narrow and low pH operating range (0 to 2) — ISAB is mandatory for ALL samples.