

Silver Ion

Ag⁺

ELIT 8211 · ELIT Ion Selective Electrode · Cation

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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 8211 |
| Ion | Silver (Ag ⁺) |
| Ion Type | Cation |
| Valence | 1 |
| Membrane Type | Solid-state mono-crystalline Ag ₂ S membrane |
| Molar Mass | 107.868 g/mol |
| 1000 ppm equiv. | 0.00927 M |

OPERATIONAL PARAMETERS

| | |
|----------------------|--|
| Preconditioning | 1000 ppm Silver standard |
| Preconditioning Time | Min. 5 minutes |
| Detection Range | 0.01 to 10,790 ppm (9×10 ⁻⁸ to 0.1 M) |
| Electrode Slope | 54 ± 5 mV/decade |
| pH Range | pH 1 to 9 |
| Temperature Range | 0 to 80 °C |
| Response Time | < 10 seconds (90% response) |
| Potential Drift | < 3 mV/day in 1000 ppm (8 hours) |

SELECTIVITY COEFFICIENTS (INTERFERENCE DATA)

| Interfering Ion | Selectivity Coeff. | Note |
|-----------------------------|--------------------|---|
| Mercury (Hg ²⁺) | variable | Strong interference — avoid if Hg is present. |
| Sulphide (S ²⁻) | variable | Precipitates as Ag ₂ S on membrane — avoid or remove before measurement. |

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

REAGENTS & STANDARDS

| | |
|---------------------|---|
| Reference Electrode | Double junction lithium acetate (ELIT 003n). Outer filling solution: 0.1M CH ₃ COOLi. |
| ISAB / Buffer | 5M NaNO ₃ — Add 2% v/v. Acidify all solutions to pH 2–3 with HNO ₃ to prevent silver hydroxide formation. |
| Standard Prep | Dissolve 1.575 g anhydrous silver nitrate (AgNO ₃) in 1 litre 0.001M HNO ₃ . Protect from light. |

TYPICAL APPLICATIONS

- Industrial Process Control
- Environmental Monitoring
- Research
- Water Quality Monitoring

CALIBRATION & SAMPLE PREPARATION

Prepare standards in 0.001M HNO₃. Use 1000, 100, 10, 1, 0.1 ppm Ag. Add 2% v/v 5M NaNO₃ ISAB and acidify all solutions to pH 2–3 with HNO₃. Stir at ~100 rpm during measurement.

Add 2 ml 5M NaNO₃ ISAB to each 100 ml sample. Acidify to pH 2–3 with HNO₃. Remove sulphide by UV treatment or precipitation. Stir at ~100 rpm during measurement.

ANALYTICAL NOTES

- Can also be used for halide measurements (Cl⁻, Br⁻, I⁻) by measuring silver after standardised halide addition.
- Excellent lower detection limit due to solid-state Ag₂S membrane.
- Protect standards and samples from light to prevent photoreduction.
- Stir solutions at ~100 rpm during measurement for best results.

SAFETY & HAZARDS

! Silver nitrate is a strong oxidiser and stains skin dark brown/black. Wear gloves and eye protection.

! Do not mix with organic solvents or combustible materials.

This document is provided for guidance only. Specifications subject to change without notice. For technical support contact sales@nico2000.net or call 020 8422 6779.