ISE DATASHEET

Perchlorate Ion

ELIT 8061 · ELIT Ion Selective Electrode · Anion

ClO4-

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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 8061
Ion	Perchlorate (ClO_4^-)
Ion Type	Anion
Valence	1
Membrane Type	Solid-state PVC polymer matrix membrane
Molar Mass	99.451 g/mol
1000 ppm equiv.	0.010 M

OPERATIONAL PARAMETERS

Preconditioning	1000 ppm Perchlorate standard
Preconditioning Time	Min. 5 minutes
Detection Range	0.2 to 9,960 ppm (2×10^{-6} to 0.1 M)
Electrode Slope	54 ± 5 mV/decade
pH Range	pH 0 to 11
Temperature Range	0 to 50 °C
Response Time	< 10 seconds (90% response)
Potential Drift	< 3 mV/day in 1000 ppm (8 hours)

REAGENTS & STANDARDS

Reference Electrode	Single junction (ELIT 001).
ISAB / Buffer	1M CH_3COONa (sodium acetate) — Add 2% v/v.
Standard Prep	Dissolve 1.231 g anhydrous sodium perchlorate ($NaClO_4$) in 1 litre deionised water.

TYPICAL APPLICATIONS

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

SELECTIVITY COEFFICIENTS (INTERFERENCE DATA)

Interfering Ion	Selectivity Coeff.	Note
Thiocyanate (SCN^-)	0.03	—
Iodide (I^-)	0.02	Tolerated up to the same concentration as perchlorate (~2% enhancement).
Nitrate (NO_3^-)	0.02	Tolerated up to the same concentration as perchlorate (~2% enhancement).
Chloride (Cl^-)	0.0003	Can be present up to 100× more concentrated before significant error.
Phosphate (PO_4^{3-})	0.0002	—
Acetate (CH_3COO^-)	0.0001	—

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

CALIBRATION & SAMPLE PREPARATION

Calibrate with 1000, 100, 10, 1, 0.1 ppm ClO_4 solutions. For high ionic strength samples (> 0.01 M), add 2 ml ISAB to each 100 ml standard.

Low ionic strength: immerse in 50–100 ml sample. High ionic strength: add 2 ml ISAB to 100 ml sample and stir well.

ANALYTICAL NOTES

- Wide pH operating range (0 to 11).
- Nitrate can be tolerated at equal concentration to perchlorate (causes ~2% enhancement).
- Chloride can be present up to 100× the perchlorate concentration before causing significant error.