

# Potassium Ion

K<sup>+</sup>

ELIT 8031 · 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 8031
Ion	Potassium (K <sup>+</sup> )
Ion Type	Cation
Valence	1
Membrane Type	Solid-state PVC polymer matrix membrane
Molar Mass	39.098 g/mol
1000 ppm equiv.	0.0256 M

## OPERATIONAL PARAMETERS

Preconditioning	1000 ppm Potassium standard
Preconditioning Time	Min. 5 minutes
Detection Range	0.4 to 3,900 ppm (0.01 to 0.1 M)
Electrode Slope	54 ± 5 mV/decade
pH Range	pH 1 to 9
Temperature Range	0 to 50 °C
Response Time	< 10 seconds (90% response)
Potential Drift	< 3 mV/day in 1000 ppm (8 hours, constant temperature)

## SELECTIVITY COEFFICIENTS (INTERFERENCE DATA)

Interfering Ion	Selectivity Coeff.	Note
Rubidium (Rb <sup>+</sup> )	2	Rarely present in practical samples.
Caesium (Cs <sup>+</sup> )	0.4	Rarely significant in practical samples.
Ammonium (NH <sub>4</sub> <sup>+</sup> )	0.01	Most common interferent in natural water — significant only if NH <sub>4</sub> concentration is high relative to K.
Sodium (Na <sup>+</sup> )	0.0004	—
Calcium (Ca <sup>2+</sup> )	0.0003	—
Magnesium (Mg <sup>2+</sup> )	0.0003	—
Lithium (Li <sup>+</sup> )	0.0001	—

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 <sub>3</sub> COOLi.
ISAB / Buffer	2.5M NaCl or 5M TEAC — Add 2% v/v. For K < 5 ppm in high ionic strength samples, use 5M TEAC instead of NaCl.
Standard Prep	Dissolve 1.907 g anhydrous potassium chloride (KCl) in 1 litre deionised water.

## TYPICAL APPLICATIONS

- Agriculture & Soil Analysis
- Water Quality Monitoring
- Food & Beverage
- Environmental Monitoring

## CALIBRATION & SAMPLE PREPARATION

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Calibrate with 1000, 100, 10, 1 ppm K solutions. Add 2% v/v ISAB to all standards and samples. For K < 5 ppm in high ionic strength samples, use 5M TEAC ISAB instead of NaCl.

Add 2 ml 2.5M NaCl ISAB to each 100 ml sample. Filter turbid samples. For low-K, high-ionic-strength samples, use 5M TEAC as ISAB.

## ANALYTICAL NOTES

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- Used widely in agriculture for soil and plant extract analysis.
- Ammonium interference is generally low (SC = 0.01) — only significant if NH<sub>4</sub> concentration greatly exceeds K.
- For samples < 5 ppm K in high ionic strength matrices, switch to 5M TEAC ISAB for improved accuracy.

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