Technical Specifications for the Sodium Ion-Selective Electrode
ELIT 8230

Introduction
The Sodium Ion-Selective Electrode has a solid-state PVC polymer matrix membrane. The electrode is designed for the detection of sodium ions (Na\(^+\)) in aqueous solutions and is suitable for use in both field and laboratory applications.

The Sodium Ion is a monovalent cation.

One mole of (Na\(^+\)) has a mass of 22.99 grams; 1000 ppm is 0.0435 M

Dissolve 2.542g anhydrous sodium chloride (NaCl) in 1 litre water.

Physical Specifications
Length of body excl gold contact 130 mm
Length of body incl. gold contact 140 mm
Diameter of body 8 mm
DC resistance at 25\(^\circ\) C < 2.5 MOhm
Minimum feasible sample volume 5 ml

Chemical / Operational Specifications
Preconditioning / Standard solution Normally 1000 ppm Na\(^+\) as NaCl
(But see General Operating Instructions)
Preconditioning time at least 5 minutes
Optimal pH range pH 3 to pH 10
Temperature range 0 to 50\(^\circ\) C
Recommended ISAB NO BUFFER SUITABLE
(Use Standard Addition Method for samples with high ionic strength)
Recommended reference electrode Single Junction AgCl (ELIT 001)
Electrode slope at 25\(^\circ\) C 54 ±5 mV/ decade
Concentration range 0.05 to 2,300 ppm (2x10-6 to 0.1 Molar)
Response time < 10 seconds
(Defined as time to complete 90% of the change in potential after immersion in the new solution.)
Potential drift (in 1000 ppm) < 3 mV/ day (8 hours)
(Measured at constant temperature and with ISE and Reference Electrode continually immersed)

Interference:
Virtually all cations interfere with the sodium electrode to some extent! Thus it is best used for measuring pure Na solutions or solutions where Na is far more concentrated than other components. This factor also means that it is difficult to choose a satisfactory ISAB for this electrode.

Known Selectivity Coefficients are: K+ ~ 0.6, NH4+ ~ 0.2, Ca++ ~ 0.02, Mg++ ~ 0.03.

Where the SC is the approximate apparent increase in the measured concentration caused by 1 unit of the interferent. Thus the likely effect of any interfering ion (% increase) can be calculated as follows:

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((\text{expected concentration}) \times \text{SC}) / (\text{expected Na concentration})) \times 100.
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For more information, see: www.nico2000.net.