# Technical Specifications for the Cyanide Ion-Selective Electrode
## ELIT 8291

**Introduction**

The Cyanide Ion-Selective Electrode has a solid-state crystal membrane. The electrode is designed for the detection of cyanide ions **($CN^-$)** in aqueous solutions and is suitable for use in both field and laboratory applications.

The Cyanide Ion is a monovalent anion .

One mole of ( $CN^-$) has a mass of 26.018 grams, 1000 ppm is 0.038 M

Dissolve 2.503g anhydrous potassium cyanide (KCN) in 1 litre water - HAZARD WARNING!.

**Physical Specifications**

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|---|---|
| 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° C | < 2.5 MOhm |
| Minimum feasible sample volume | 5 ml |

**Chemical / Operational Specifications**

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|---|---|
| Preconditioning / Standard solution *(But see General Operating Instructions)* | Normally 1000 ppm $CN^-$ as KCN |
| Preconditioning time | 5 minutes |
| Optimal pH range | pH 11 to pH 13 |
| Temperature range | 0 to 80° C |
| Recommended ISAB | 10M NaOH (add 2% v/v) |
| Recommended reference electrode | double junction **(ELIT 003)** |
| Reference electrode outer filling solution | 0.1 M CH3COOLi |
| Electrode slope at 25° C | 54±5 mV/ decade |
| Concentration range | 0.03 to 260 ppm (1x10-6 to 0.01 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:**

All poly-crystalline membranes contain Silver Sulphide and thus will not give reliable readings if Ag or S ions are present in the solution.

Iodide has a selectivity coefficient of 1 (equally sensitive to I and CN). therefore any Iodide present will cause a significant positive error (>10%) if it is has a concentration greater than one tenth of that of the Cyanide.

Note low concentration range; only effective from 0.03 to 260 ppm CN-.

Note narrow and high pH range - only good between pH 11 and 13.

WARNING: 10M NaOH buffer is a very caustic solution and should be handled with care.

**For more information, see: www.nico2000.net.**