



# One-Piece, Polymer Gel Reference Electrode for CNSolution™ Amperometric Detectors

## Description

OI Analytical has released an improved reference electrode for use in CNSolution™ amperometric detectors. This new electrode (P/N 325348) is a one-piece design with the Ag/AgCl junction inside a sealed housing filled with 3M-KCl gel. Interaction with working and auxiliary electrodes occurs through a low-flow frit.

This one-piece reference electrode is compatible with the flow cells of CNSolution 3100 and 3000 amperometric detectors. It is available as a convenient direct replacement to the previous design that required filling with a reference solution and reassembly with an o-ring to seal the amperometric membrane inside the cell.

The new one-piece reference electrode is fitted and shipped with a protective boot filled with DI water to prevent dehydration. If the protective boot is kept intact an electrode should remain active for six months.

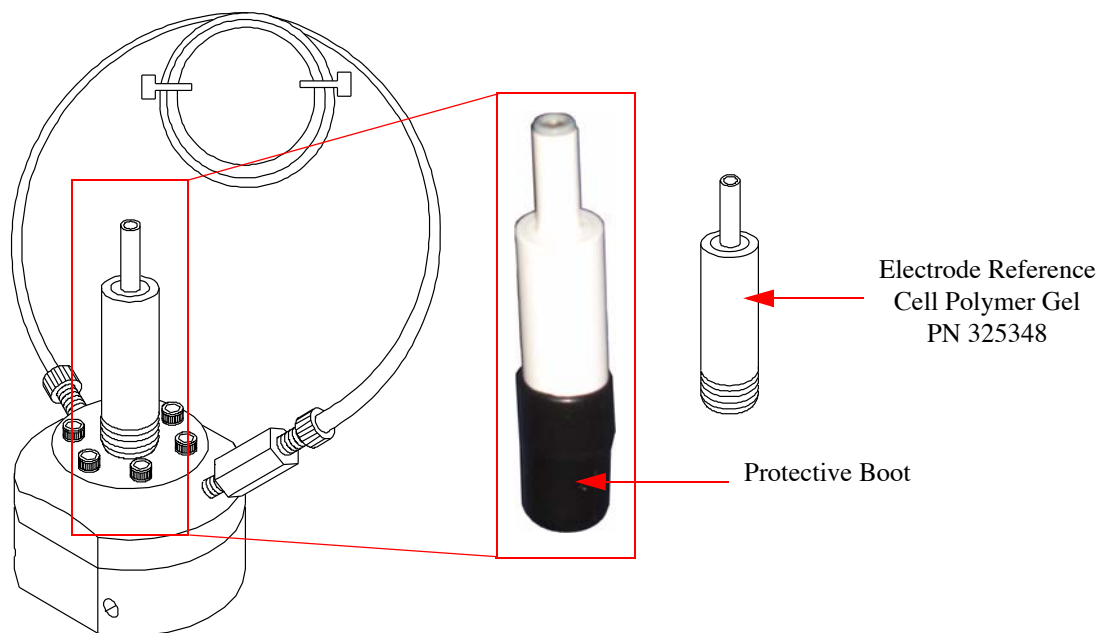


Figure 1. One-Piece Reference Electrode for CNSolution Amperometric Detectors

Beta site testing of the one-piece reference was performed in several customer's laboratories. Results from an available cyanide analysis and interference check conducted at a customer beta site are presented in Figure 2 and Table 1.

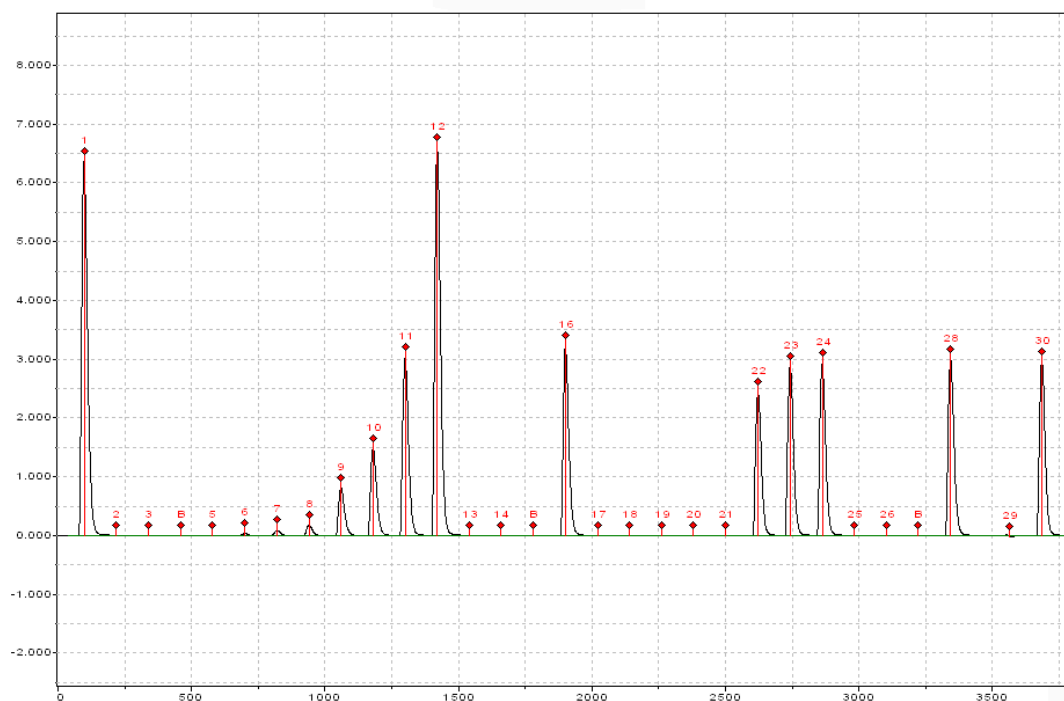


Figure 2. Available Cyanide analysis and interference check conducted with a one-piece reference electrode at a customer beta site.

**Table 1:** Available Cyanide Analysis and Interference Check Data

Peak	Interference Check Data
Peak 1	500-ppb Sync
Peak 6	2-ppb CN
Peak 7	5-ppb CN
Peak 8	10-ppb CN
Peak 9	50-ppb CN
Peak 10	100-ppb CN
Peak 11	200-ppb CN
Peak 12	500-ppb CN
Peak 16	200-ppb CN
Peak 19	200-ppm SO <sub>3</sub> – no interference
Peak 20	200 ppm S <sub>2</sub> O <sub>3</sub> – no interference
Peak 21	200-ppm SCN – no interference
Peak 22	200-ppm SO <sub>3</sub> + 200-ppb CN (81% Recovery)*
Peak 23	200-ppm S <sub>2</sub> O <sub>3</sub> + 200-ppb CN (97% Recovery)
Peak 24	200-ppm SCN + 200-ppb CN (99% Recovery)
Peak 28	200-ppb CN (101% Recovery)
Peak 29	1,500-ppm CO <sub>3</sub> – no interference
Peak 30	1,500-ppm CO <sub>3</sub> + 200-ppb CN (99% Recovery)

\* The lower recovery is due to cyanide oxidation in basic sodium sulfite containing solutions. This oxidation occurs in the sample vial as the solution awaits analysis. It is not a negative bias due to the reference electrode.



P.O. Box 9010  
College Station, TX 77842-9010  
Tel: (979) 690-1711 • Fax: (979) 690-0440 • [www.oico.com](http://www.oico.com)