

# Certificate of Analysis

## Cyanide QC CRM

**Catalog Number:** QCI-015  
**Lot Number:** D0422  
**Manufacture Date:** 03/22/22  
**Certified Date:** 03/31/22

**Expiration:** 03/31/2024  
**Solvent:** Water/NaOH  
**Hazards:** Irritant

<u>Analyte</u>	<u>Study Mean</u> (mg/L)	<u>Certified Concentration</u> (mg/L)	<u>Acceptance Limits</u> (mg/L)
Cyanide	0.249	0.274 ± 0.003	0.206 - 0.343

This quality control CRM was manufactured by NSI Lab Solutions following quality procedures meeting the requirements of ISO 9001, ISO 17025, and ISO 17034. Acceptance limits are set at current NELAC standards. The study mean is set at the mean of an interlaboratory proficiency testing study with outlier rejection. This CRM is intended to be used to validate analytical methods, for detection limit studies, and analyst proficiency testing.

### Storage & Instructions For Use

**The unopened ampule can be stored at room temperature (15-30°C). Keep away from light.**

Mix the contents of the ampule by inversion before opening.  
Fill a 1000 mL Class A volumetric flask with 900 mL of organic free reagent water.  
Adjust the alkalinity of the reagent water to pH.12 with 1-2 mL of 50% NaOH.  
Open the ampule and pipet exactly 10.0 mL of the concentrate into the flask.  
Bring the flask to volume with reagent water and mix well.  
This represents the sample for analysis.

### Traceability Information

**Analyte Source Materials:** The highest purity analyte source materials are used in the manufacture of this CRM. Analyte source material purity and associated uncertainty has been analytically verified against appropriate NIST SRMs, where available.

**Balance:** All analytical balances are calibrated on a semiannual basis by an ISO 17025 accredited calibration laboratory and are traceable to NIST. Traceable Calibration Certificate available upon request.

All balances are checked daily by an in-house standard operating procedure. The weights used for this daily verification are calibrated annually by an ISO 17025 accredited calibration laboratory and are certified traceable to NIST. Certificate of Calibration and Traceability available upon request.

**Thermometer:** All thermometers are NIST traceable through thermometers that are calibrated annually by an ISO 17025 accredited calibration laboratory.

**Glassware:** All glassware used in the manufacture of our samples is Class A. An in-house standard operating procedure is used to verify all glassware prior to it being placed into service. Volumetric pipetors are calibrated every four months by an ISO 17025 accredited calibration laboratory.





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**Uncertainty**

The  $\pm$  uncertainty associated with the certified concentration is the expanded uncertainty at 95% confidence interval (CI) with K=2. This expanded uncertainty incorporates contributions from manufacturing, homogeneity, and stability.

**Homogeneity**

This quality control CRM was thoroughly mixed in production. Batch homogeneity was established through analyses of samples chosen at random.

**Stability/Expiration**

The stability of this quality control CRM is based on short-term and long-term monitoring of the certified concentration. The expiration date is guaranteed to be valid from the manufacture date and is based on results of long-term monitoring. Guarantee is applicable to the unopened ampule.

*Ewart Morris*

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Ewart Morris, Inorganics Technical Manager

*Mark Hammersla*

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Mark Hammersla, President