

Certificate of Analysis

Anions in Soil

Catalog Number: SQCI-015
Lot Number: S1021
Manufactured Date: 10/12/21
Certified Date: 10/14/21

Expiration: 10/31/2023
Matrix: Soil
Hazards: Irritant

<u>Analyte</u>	<u>Study Mean</u> (mg/kg)	<u>Certified Concentration</u> (mg/kg)	<u>Acceptance Limits</u> (mg/kg)
Bromide	65.1	67.9 ± 0.632	47.2 - 82.7
Chloride	918	881 ± 8.20	653 - 1170
Fluoride	218	255 ± 2.37	95.3 - 340
Nitrate as N	49.0	35.6 ± 0.331	31.7 - 66.3
Nitrate+Nitrite as N	161	143 ± 1.33	129 - 178
Nitrite as N	114	107 ± 0.996	46.8 - 181
Orthophosphate as P	205	230 ± 2.14	182 - 253
Sulfate	189	209 ± 1.95	97.5 - 283

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 certified concentration is the gravimetric true value determined during manufacture, masses traceable to NIST. The study mean is set at the robust 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

Required storage condition is 2-8°C.

Mix well. Open and subsample in a fume hood.

No modification to the sample prior to sub-sampling is necessary.

The soil CRM is to be extracted and analyzed using an appropriate extraction and analytical method for bromide, chloride, fluoride, nitrate as N, nitrate/nitrite as N, nitrite as N, sulfate, and orthophosphate as P.

Report results as mg/kg assuming 100% solids. No dry weight correction is required.

Do not correct the analytical results for matrix spike recovery bias.

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.





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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 CRMs 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.

Homogeneity/Stability/Expiration

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

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.

Ewart Morris

Ewart Morris, Inorganics Technical Manager