Certified Reference Material

▪ Certificate of Analysis ▪

Product: WatR™ Pollution Simple Nutrients
Catalog Number: 505
Lot No. P322-505
Certificate Issue Date: January 18, 2022
Expiration Date: March 03, 2025
Revision Number: Original

Product use instructions are included as part of the certification packet and are paginated separately from this Certificate of Analysis. Please reference the product use instructions for catalog #505 revision 082021.

CERTIFICATION

Parameter	Certified Value[1]	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/L	%	mg/L	mg/L
Ammonia as N	1.66	1.69	1.42 - 1.89	1.14 - 2.27
Nitrate + Nitrite as N	5.91	2.79	5.24 - 6.56	4.86 - 6.91
Nitrate as N	5.91	2.79	5.20 - 6.56	4.80 - 6.98
ortho-Phosphate as P	5.12	2.36	4.57 - 5.68	4.35 - 5.89
Total Nitrogen	7.57	1.77	5.40 - 9.77	4.32 - 10.8

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number[6]	Recovery
	mg/L	mg/L	%			%
Ammonia as N	1.66	1.69	102	50	194a	96.9
Nitrate + Nitrite as N	5.91	6.01	102	23	3185	96.6
Nitrate as N	5.91	6.05	102	43	3185	96.6
ortho-Phosphate as P	5.12	5.13	100	40	3186	97.3
Total Nitrogen	7.57	9.48	125	12	-	-

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1. The **Certified Values** are the actual gravimetric/volumetric "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

2. The **Uncertainty** represents an expanded uncertainty and approximates a 95% confidence interval. The uncertainty is based on the characterization, homogeneity and stability characteristics of the product, multiplied by a coverage factor (k=2). The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product. The formula used to calculate the expanded uncertainty is:
$U_{expanded} = k * SQRT((U_{char}^2) + (U_{homogen}^2) + (ULTS^2) + (USTS^2) + (URSS^2))$

Where:

$U_{expanded}$ = Expanded uncertainty.
k = Coverage factor.
U_{char} = Combined standard uncertainty of the manufacturing and/or analytical verification assessment.
$U_{homogen}$ = Standard uncertainty of the homogeneity assessment.
ULTS = Standard uncertainty associated with long-term stability.
USTS = Standard uncertainty associated with short-term (transport) stability.
URSS = Standard uncertainty associated with repeated sampling of the product (where permitted by product use instructions).

3. The **QC Performance Acceptance Limits (QC PALs™)** are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this certified reference material alongside USEPA and NELAC compliant PT study materials. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and therefore, the acceptance limits of this certified reference material and any PT study material may differ relative to their difference in concentrations.

5. The **PT Performance Data** include the mean value, percent recovery and number of data points reported by laboratories in our Proficiency Testing study compared to the Certified Values. In the event this lot was not used in a proficiency testing scheme, the data displayed was generated internally by ERA.

6. Where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. **Analytical Traceability Recovery (%)** = [(% recovery ERA certified reference material)/(% recovery NIST SRM)]*100
The traceability data shown were compiled by analyzing this ERA certified reference material and/or it's associated stock solution(s) against the applicable NIST SRMs.

7. **Metrological Traceability**. This certified reference material is metrologically traceable to NIST mass reference materials through an unbroken chain of comparisons.

8. For additional information on this product such as intended use, storage information, instructions for use, minimum sample size, and safety information, please refer to the Product Use Instructions provided.

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

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