RICCA CHEMICAL COMPANY®

Arlington, TX 76012
Pocomoke City, MD 21851
Batesville, IN 47006
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Product Specification

CERTIFIED REFERENCE MATERIAL

VeriSpec® Nexion AFT ICP-MS Multi-Element Standard 2 ppb: Ag,Al,As,Ba,Be,Bi,Ca,Cd,Cr,Co,Cs,Cu,Fe,Ga,In,K,Li,Mg,Mn,Na,Ni,Pb,Rb,Se,Sr,Tl,U,V,Zn

Manufacture Date: N/A

Lot Number: SAMPLE **Product Number:** RV010891 **Expiration Date:** N/A

Component	Certified Value	Uncertainty	Starting Material*	Traceability
Ag	0.002 ppm (a)		$AgNO_3$ *	
Al	0.002 ppm (a)		$Al(NO_3)_3$ *	
As	0.002 ppm (a)		H_3AsO_4 *	
Ba	0.002 ppm (a)		$BaCl_2$ *	
Be	0.002 ppm (a)		$Be(NO_3)_2$ *	
Bi	0.002 ppm (a)		$Bi(NO_3)_3$ *	
Ca	0.002 ppm (a)		$Ca(NO_3)_2$ *	
Cd	0.002 ppm (a)		$Cd(NO_3)_2$ *	
Co	0.002 ppm (a)		$Co(NO_3)_2$ *	
Cr	0.002 ppm (a)		$Cr(NO_3)_3$ *	
Cs	0.002 ppm (a)		$CsNO_3$ *	
Cu	0.002 ppm (a)		$Cu(NO_3)_2$ *	
Fe	0.002 ppm (a)		$Fe(NO_3)_3$ *	
Ga	0.002 ppm (a)		$Ga(NO_3)_3$ *	
In	0.002 ppm (a)		$In(NO_3)_3$ *	
K	0.002 ppm (a)		KNO_3 *	
Li	0.002 ppm (a)		$LiNO_3$ *	
Mg	0.002 ppm (a)		$Mg(NO_3)_2$ *	
Mn	0.002 ppm (a)		$Mn(NO_3)_2$ *	
Na	0.002 ppm (a)		$NaNO_3$ *	
Ni	0.002 ppm (a)		$Ni(NO_3)_2$ *	
Pb	0.002 ppm (a)		$Pb(NO_3)_2$ *	
Rb	0.002 ppm (a)		$RbNO_3$ *	
Se	0.002 ppm (a)		H_2SeO_3 *	
Sr	0.002 ppm (a)		$Sr(NO_3)_2$ *	
Tl	0.002 ppm (a)		$TlNO_3$ *	
U	0.002 ppm (a)		$UO_2(CH_3COO)_2$ *	
V	0.002 ppm (a)		NH_4VO_3 *	
Zn	0.002 ppm (a)		$Zn(NO_3)_2$ *	

* Starting material purity is not a certified value.

Matrix: 2% HNO_3

Method(s) of certification used:

(a) *The certified value was obtained using IC or ICP-OES calibration*

Concept of certification and traceability statement:

This certified reference material is produced using a high-purity starting material, acid from sub-boiling and 18 MOhm deionized water.
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02
Property of the result of a measurement whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (ISO VIM)
The metrological traceability is assured through calibration on ICP-OES, AAS. The calibration curve is drawn using a series of standard solutions prepared from a certified reference material traceable to SI of NIST (SRM) and of accredited according to ISO/IEC 17025 and/or ISO Guide 34 laboratories/producers. All contributions in relation to the certification of standard solutions are considered when evaluating the uncertainty.
The measurement results are traceable to SI. All analytical balances used for the preparation of the solution are calibrated yearly under an in-house procedure with analytical weights, traceable to DKD and are daily checked.
Class A laboratory glassware is used.
The results from temperature measurement are traceable to SI. The thermometers used for solution's calibration are calibrated from an ISO 17025 accredited laboratory. The ambient conditions are controlled with a hygrometer calibrated from an ISO 17025 accredited laboratory.

Level of homogeneity:

The solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.
To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion.

Intended use:

For Laboratory Use Only
This CRM is intended for:

- Calibration of ICP-OES, AAS
- Validation of analytical methods
- Preparation of "working reference samples"
- Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

Instructions for the correct use of this reference material:

This certified reference material can be used directly or can be diluted in an appropriate high-purity matrix. Only clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution.

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this RM. Further details for the handling of this RM are available as safety data sheet.

Stability and storage:

This CRM is with a guaranteed stability until ±0.5% of the certified concentration within its shelf-life. Stability is guaranteed provided that the solution is kept in its original packaging, tightly closed under normal laboratory conditions.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months

RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months
RV010891-100N	100 mL natural LDPE	6 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

This Certificate of Analysis is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

This Certified Reference material was produced under a quality management system that is accredited to ISO/IEC 17025 and ISO Guide 34.