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STOCK STANDARD SOLUTION

IV-ACID-BLANK

5% (v/v) HNO₃

Starting Material: Nitric Acid
 Starting Material Purity: Doubly Distilled
 Starting Material Lot No: 24032202

TRACEABILITY DOCUMENTATION FOR STANDARD SOLUTION Lot No: X2-ACD765720

We use 18 megohm deionized water & deionized water rinsed LDPE bottles, with less than 0.5ppb total impurities in the manufacturing of this ICP standard. We always use "in-house calibration checked" Class A Glassware. All balances are checked daily using an in-house procedure. The weights used for testing are annually compared to master weights and are traceable to the National Institute of Standards and Technology (NIST).

ANALYZED DENSITY OF SOLUTION (measured at 20 ± 5° C): 1.024 g/mL

TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP/MS AND ICP-OES IN µg/mL

CRM's solutions are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm. The following data is representative of an analysis for a typical blank solution.

<u>M</u> Al	<	0.00010	<u>M</u> Sb	<	0.00001	<u>M</u> As	<	0.00010	<u>M</u> Ba	<	0.00010	<u>M</u> Be	<	0.00001
<u>M</u> Bi	<	0.00001	<u>M</u> B	<	0.00070	<u>M</u> Cd	<	0.00003	<u>M</u> Ca	<	0.00005	<u>M</u> Ce	<	0.00005
<u>M</u> Cs	<	0.00001	<u>M</u> Cr	<	0.00005	<u>M</u> Co	<	0.00003	<u>M</u> Cu	<	0.00006	<u>M</u> Dy	<	0.00006
<u>M</u> Er	<	0.00005	<u>M</u> Eu	<	0.00003	<u>M</u> Gd	<	0.00001	<u>M</u> Ga	<	0.00001	<u>M</u> Ge	<	0.00006
<u>M</u> Au	<	0.00003	<u>M</u> Hf	<	0.00002	<u>M</u> Ho	<	0.00001	<u>M</u> In	<	0.00010	<u>M</u> Ir	<	0.00005
<u>M</u> Fe	<	0.00200	<u>M</u> La	<	0.00001	<u>M</u> Pb	<	0.00003	<u>M</u> Li	<	0.00010	<u>M</u> Lu	<	0.00001
<u>M</u> Mg	<	0.00030	<u>M</u> Mn	<	0.00004	<u>M</u> Hg	<	0.00001	<u>M</u> Mo	<	0.00002	<u>M</u> Nd	<	0.00002
<u>M</u> Ni	<	0.00008	<u>M</u> Nb	<	0.00001	<u>n</u> Os	<	0.00001	<u>M</u> Pd	<	0.00005	<u>M</u> P	<	0.00001
<u>M</u> Pt	<	0.00002	<u>M</u> K	<	0.00005	<u>M</u> Pr	<	0.00001	<u>M</u> Re	<	0.00001	<u>M</u> Rh	<	0.00001
<u>M</u> Rb	<	0.00001	<u>M</u> Ru	<	0.00002	<u>M</u> Sm	<	0.00001	<u>M</u> Sc	<	0.00010	<u>M</u> Se	<	0.00008
<u>M</u> Si	<	0.00001	<u>M</u> Ag	<	0.00002	<u>M</u> Na	<	0.00005	<u>M</u> Sr	<	0.00001	<u>M</u> S	<	0.00001
<u>M</u> Ta	<	0.00007	<u>M</u> Te	<	0.00030	<u>M</u> Tb	<	0.00001	<u>M</u> Tl	<	0.00001	<u>M</u> Th	<	0.00001
<u>M</u> Tm	<	0.00001	<u>M</u> Sn	<	0.00005	<u>M</u> Ti	<	0.00050	<u>M</u> W	<	0.00010	<u>M</u> U	<	0.00002
<u>M</u> V	<	0.00002	<u>M</u> Yb	<	0.00001	<u>M</u> Y	<	0.00040	<u>M</u> Zn	<	0.00020	<u>M</u> Zr	<	0.00005

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference n - Not Checked For s - Solution Standard Element

THERMOMETER CALIBRATION

All thermometers are NIST traceable through thermometers that are calibrated by an A2LA accredited calibration laboratory.

Certification Date: September 17, 2026

Expiration Date: September 17, 2031

NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By: Justin DiRico, Stock Processing Supervisor

A handwritten signature in black ink, appearing to read "Justin DiRico".

Certificate Approved By: Shalin Presgraves, SVS Coordinator

A handwritten signature in black ink, appearing to read "Shalin Presgraves".

Certifying Officer: Brain Alexander, President

A handwritten signature in black ink, appearing to read "Brain Alexander".