

INORGANIC CUSTOM & STOCK CERTIFIED REFERENCE MATERIALS

| | |
|---|--|
| 6 C Carbon 12.0107 $1s^2 2s^2 2p^2$ 11.260 | 7 N Nitrogen 14.0067 $1s^2 2s^2 2p^3$ 14.5341 |
| 14 Si Silicon 28.0855 $[Ne] 3s^2 3p^2$ 8.1517 | 15 P Phosphorus 30.973761 $[Ne] 3s^2 3p^3$ 10.4867 |
| 32 Ge Germanium 72.64 $[Ar] 3d^{10} 4s^2 4p^2$ 7.8994 | 33 As Arsenic 74.92160 $[Ar] 3d^{10} 4s^2 4p^3$ 9.7886 |
| 50 Sn Tin 118.710 $[Kr] 4d^{10} 5s^2 5p^2$ 7.3439 | 51 Sb Antimony 121.757 $[Kr] 4d^{10} 5s^2 5p^3$ 8.6084 |
| 82 Pb Lead 207.2 $[Hg] 6p^2$ 7.4167 | 83 Bi Bismuth 208.98038 $[Hg] 6p^3$ 7.2855 |

2014
2015





Welcome to our 2014–2015 Catalog!

Our goal as a reference material manufacturer is to provide certified reference materials (CRMs) that meet your needs. Our manufacturing process must fall within the ISO Guide 34 guidelines, and we accept this as a baseline requirement. Our goal is not only to provide the highest-quality product, but also to provide the best customer service and technical support in the industry. I would like for you to try us and experience this for yourself. If any aspect of your IV experience is not the best you have encountered, please let us know. We greatly value your opinions and suggestions. We are continually striving to Flex to Your Specs.

In closing, I'd like to sincerely thank you for your continued support and for choosing Inorganic Ventures as your CRM manufacturer.

A handwritten signature in black ink that reads "Paul R. Gaines". The signature is written in a cursive, flowing style.

Paul R. Gaines, Ph.D.

CEO & Fellow Chemist
Serving You in Chemistry



Pictured front cover: Lee Hawthorne, Manufacturing Technician

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Linda Gaines, Chief Financial Officer

WE FLEX TO YOUR SPECS

QUALITY, CUSTOMS & MORE

Inorganic Ventures is located in Christiansburg, Virginia.

For more than 28 years, Inorganic Ventures has focused on manufacturing inorganic certified reference materials (CRMs) for analytical markets worldwide, offering you unparalleled speed, quality, service and support.

Let us show you how **we flex to your specs.**

Our international facility. Our international distribution center is located in Santander, Spain. This fully stocked facility provides fast delivery and competitive shipping rates for our global customers.

Quality

A history of accreditation. For more than 13 years Inorganic Ventures has been accredited by A2LA to ISO Guide 34 & ISO 17025. These are the core standards of the analytical testing community, and Inorganic Ventures continues to lead the way in obtaining and developing these quality standards. This means every CRM is engineered to be stable, compatible, NIST traceable and manufactured and tested under ISO Guide 34 & ISO 17025 guidelines.

Registered to ISO 9001 since 1996, we have developed our quality management system to include four robust quality objectives that are an integral part of our daily operations. They are:

- **Customer Satisfaction: No justified customer complaints**
- **Every order will ship on time**
- **Complete and accurate testing of all our products**
- **Defect-free processing**

Our Quality Statement:

We will “flex to the customer’s specs” and strive to exceed the customer’s expectations regarding our products and service.

Elizabeth Day, Quality Assurance Specialist, and
Gary Costa, Quality Control Technician



Customs

Fast, credible, cooperative. Our vast experience in custom blending allows us to create precise, distinctive CRM blends quickly and ship them anywhere in five business days or less.

Did you know that Inorganic Ventures has the capability of producing certified analytes on various filter paper and other solid media?

And More...

On the web. Our technical library has been expanding for over a decade. Topics include ICP operations, sample preparation, trace metals analysis and much more*. There you'll discover the best online tool for analytical chemists with our Interactive Periodic Table. It includes chemical compatibilities, preferred lines, major interferences and additional data for 70+ elements. inorganicventures.com/tech-center



In the lab. All products ship with the required SDS and Certificate of Analysis. Additionally, our stock SDSs and CofAs can be found on our website for current lots as well as many older ones.

**For more new features, see page 94.*

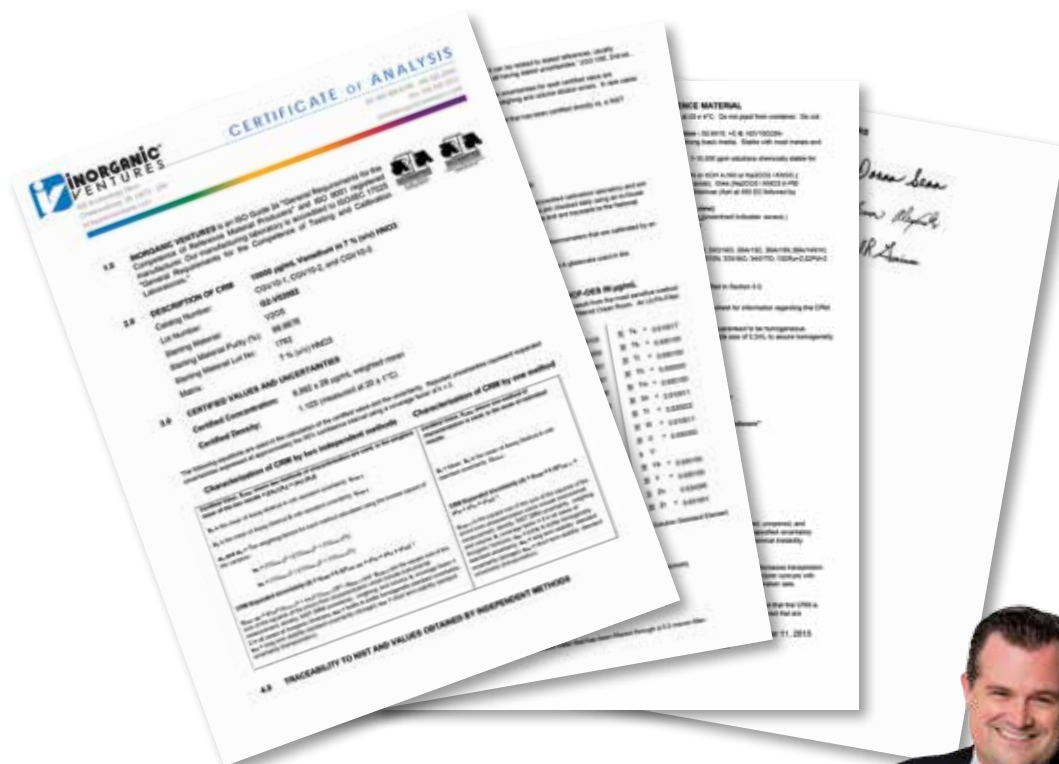


Michael Scott, Vice President

CERTIFICATE OF ANALYSIS

Certificates of Analysis. Nearly every CRM we manufacture includes a highly detailed Certificate of Analysis. As an ISO Guide 34, A2LA accredited manufacturer, our certificates include extensive data to meet the quality requirements of any laboratory:

- **Traceability** — to specific NIST SRMs and lots.
- **Certified Values** — based on two independent methods.
- **Trace Impurities** — listed with the actual values.
- **Uncertainties** — detailed information reported.



You'll wonder how you ever got along without such a thorough certificate.

Contact us for a sample.

Christopher Gaines, Vice President, and
Brian Alexander, Ph.D., Technical Process Director



We're here to help. We don't just manufacture inorganic CRMs, we also provide technical support when it is needed so you can do your job. Because inorganic chemistry is all we do, Inorganic Ventures has a dedicated technical support team that can assist you with hundreds of topics: sample preparation, method development, ICP and ICP-MS measurement issues and much more. You'll be amazed when you talk to a real person with a technical background ready to help you.

Our technical advisors are available to assist you Monday through Friday, 8:00 a.m.– 6:00 p.m. EST.

Phone

- 1.800.669.6799 (US & Canada)
- 1.540.585.3030 (International)

Email

- info@inorganicventures.com

Online

- inorganicventures.com

We can assist you with...

- Sample preparation
- Spectral interferences
- Chemical compatibilities
- Various ICP & ICP-MS measurement issues



Michele Newton, CSR–International, and
William Marble, Lead, CSR–International

WE FLEX TO YOUR SPECS
OUR GUARANTEE

Unquestionable integrity.

We believe in our products. And we value our customers. That is why every order leaving our facilities includes our "Declaration of Integrity." This document guarantees your satisfaction. Simply said, if you're dissatisfied with your order for any reason and we cannot work through the problem with you, a full refund will be issued, no questions asked.

INORGANIC VENTURES'
Declaration of Integrity

While our reputation is nearly perfect, we are not infallible. That is why every order we ship includes this document. Herein we state, in no uncertain terms, that we are 100% accountable for the quality of our standards and service.

Therefore, if you are dissatisfied with your order for any reason, tell us. We will resolve the situation in whatever way works best for you:

- A full refund
- Complimentary technical services
- A replacement item rushed to you at no cost

Our company was founded on integrity. If our standards are not measuring up to yours, we want to know.

Paul R. Gaines
Paul R. Gaines, PhD
CEO, Inorganic Ventures

WE flex TO YOUR SPECS™

INORGANIC VENTURES™

inorganicventures.com | 800.669.6799 | 540.585.3030



Josephine Wall, Quality Control Technician, and Peter-Philip Booth, Manufacturing Supervisor



Speed. Credibility. Cooperation.

We can prepare almost any inorganic blend within the boundaries of science. Whether you need two analytes or 20, milliliters or liters, 0.001 µg/mL or 10,000, we can make it for you — fast. It's our specialty.

Customization — The most prominent way that we flex to your specs.

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Easy as 1, 2, 311

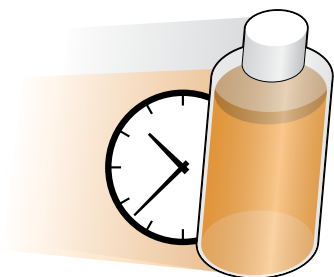
Quotation Request Form12

- ✓ Traceable to NIST SRMs and lots
- ✓ Produced under ISO 9001
- ✓ Produced under ISO 17025
- ✓ Produced under ISO Guide 34
- ✓ Assayed by optimal validated procedures



Michael Booth,
Technical Support
Specialist, and
Donna Senn,
Product
Documentation
Technician

Our catalog reveals only a fraction of the inorganic solutions we're able to make. Much of our business is devoted entirely to custom blending. Laboratories across the globe trust us exclusively to manufacture their inorganic standards.



Fast

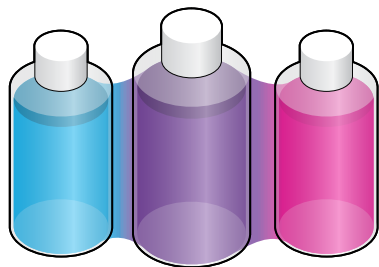
Our specialization in custom blending means faster service without sacrificing quality. Our experienced technicians can identify stability and compatibility issues before production even begins. Almost every blend we make is prepared, certified and shipped in five business days or less.



Credible

Since 1999, our tri-tier ISO quality system has ensured that every standard we make is engineered to be stable, compatible and easy to use. These international accreditations guarantee that you're receiving a true Certified Reference Material.

- **ISO Guide 34** ensures the reliability of our reference materials.
- **ISO 17025** ensures the competency of our laboratory.
- **ISO 9001** ensures the quality of our services.



Cooperative

Speed and credibility often come at a higher price. We offer specialized purchasing options and other incentives to better accommodate your budget. Just ask. We're happy to manufacture nearly any solution in bulk quantities. This prevents the need for repeat labor, which means you'll save money. Plus, there's no waiting when you reorder the material—it'll ship the day you order.



Vickie Ayers, Packaging Technician, and
Christy Shortridge, Product Documentation Technician

1

REQUEST your Customs.

Generate and request any number of custom solutions at inorganicventures.com. Or call in your request to 1.800.669.6799 and discuss your needs with a specialist. You may also fax the quotation request form to 540.585.3012.

2

REVIEW our Quotation.

Often you'll receive our pricing within hours. If you like what you see, place your order by phone, fax or web. However, if you're not happy with our quoted price, let us know. We may be able to better accommodate your budget.

3

RECEIVE your Order.

Ninety-nine percent of the custom orders we prepare ship in five business days or less. If we expect it to take longer, we'll let you know. When your need is truly urgent, we offer RUSH manufacturing* at no additional charge—just ask. Plus, everything we make is backed by our Declaration of Integrity. Your satisfaction is 100 percent guaranteed for the lifetime of the solution.

*Arrival time is 48 to 72 hours when you specify RUSH manufacturing.



Jared Phillips, Packaging Supervisor, and
Judith Sclafani, Receptionist/CSR

QUOTATION REQUEST FORM

To: Customer Service
 Inorganic Ventures
 300 Technology Drive
 Christiansburg, VA 24073

Page ____ of ____

- 1 Photocopy this page.
- 2 Fill out the form.
- 3 Fax to 1.540.585.3012.

Date: _____ (Prices guaranteed for 60 days.)

From: Name _____
 Company _____
 Address _____

Email _____
 Account No. _____
 Phone _____
 Fax _____

Describe Your Blend:

| ANALYTE | CONCENTRATION | ANALYTE | CONCENTRATION |
|---------|---------------|---------|---------------|
| 1. | _____ | 21. | _____ |
| 2. | _____ | 22. | _____ |
| 3. | _____ | 23. | _____ |
| 4. | _____ | 24. | _____ |
| 5. | _____ | 25. | _____ |
| 6. | _____ | 26. | _____ |
| 7. | _____ | 27. | _____ |
| 8. | _____ | 28. | _____ |
| 9. | _____ | 29. | _____ |
| 10. | _____ | 30. | _____ |
| 11. | _____ | 31. | _____ |
| 12. | _____ | 32. | _____ |
| 13. | _____ | 33. | _____ |
| 14. | _____ | 34. | _____ |
| 15. | _____ | 35. | _____ |
| 16. | _____ | 36. | _____ |
| 17. | _____ | 37. | _____ |
| 18. | _____ | 38. | _____ |
| 19. | _____ | 39. | _____ |
| 20. | _____ | 40. | _____ |

UNITS:

- | | |
|--------------------------------|--------------------------------|
| <input type="checkbox"/> µg/mL | <input type="checkbox"/> mg/L |
| <input type="checkbox"/> µg/L | <input type="checkbox"/> ng/mL |
| <input type="checkbox"/> µg/g | <input type="checkbox"/> ng/g |
| <input type="checkbox"/> µg/Kg | <input type="checkbox"/> g/mL |

VOLUME:

- | | |
|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> 125 mL | <input type="checkbox"/> quantity |
| <input type="checkbox"/> 250 mL | <input type="checkbox"/> quantity |
| <input type="checkbox"/> 500 mL | <input type="checkbox"/> quantity |
| <input type="checkbox"/> 1,000 mL | <input type="checkbox"/> quantity |
| <input type="checkbox"/> _____ L | <input type="checkbox"/> quantity |

MATRIX:

- _____
 Inorganic Ventures can specify

Requested Delivery Date:

RUSH Manufacturing

Solution will arrive in 48–72 business hours at no additional manufacturing charge.

You may also request quotations online:
inorganicventures.com

Specified Requirements: _____



Whether you use ICP or ICP-MS, we offer a wide selection of certified reference materials. At your request, we've expanded our line with new instrument setup standards. And we'll continue to improve our selection based on your feedback.

User-Driven Development — Another fundamental way in which we flex to your specs.

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- ✓ Traceable to NIST SRMs and lots
- ✓ Produced under ISO 9001
- ✓ Produced under ISO 17025
- ✓ Produced under ISO Guide 34
- ✓ Assayed by validated wet chemical procedures
- ✓ Assayed by validated ICP-OES procedures
- ✓ Trace metallic impurities determined by ICP and ICP-MS



Barry Arnold,
Quality Manager,
Amy James,
Manufacturing Technician

Custom 10 µg/mL standards are available upon request.

10 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|-----------------------------|---|--------|---------------|
| Aluminum, Al | HNO ₃ | Al metal | 125 mL | MSAL-10PPM |
| Antimony, Sb | HNO ₃ / Tartaric | Sb metal | 125 mL | MSSB-10PPM |
| Arsenic, As | HNO ₃ | As metal | 125 mL | MSAS-10PPM |
| Barium, Ba | HNO ₃ | Ba(NO ₃) ₂ | 125 mL | MSBA-10PPM |
| Beryllium, Be | HNO ₃ | Be ₄ O(C ₂ H ₃ O ₂) ₆ | 125 mL | MSBE-10PPM |
| Bismuth, Bi | HNO ₃ | Bi metal | 125 mL | MSBI-10PPM |
| Boron, B | HNO ₃ | H ₃ BO ₃ | 125 mL | MSB-10PPM |
| Cadmium, Cd | HNO ₃ | Cd metal | 125 mL | MSCD-10PPM |
| Calcium, Ca | HNO ₃ | CaO | 125 mL | MSCA-10PPM |
| Cerium, Ce | HNO ₃ | CeO ₂ | 125 mL | MSCC-10PPM |
| Cesium, Cs | HNO ₃ | CsNO ₃ | 125 mL | MSCS-10PPM |
| Chromium ⁺³ , Cr ⁺³ | HNO ₃ | Cr metal | 125 mL | MSCR(3)-10PPM |
| Chromium ⁺⁶ , Cr ⁺⁶ | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | MSCR(6)-10PPM |
| Cobalt, Co | HNO ₃ | Co metal | 125 mL | MSCO-10PPM |
| Copper, Cu | HNO ₃ | Cu metal | 125 mL | MSCU-10PPM |
| Germanium, Ge | HNO ₃ / HF | Ge metal | 125 mL | MSGE-10PPM |
| Gold, Au | HCl | HAuCl ₄ •xH ₂ O | 125 mL | MSAU-10PPM |
| Hafnium, Hf | HNO ₃ / HF | HfO ₂ | 125 mL | MSHF-10PPM |
| Holmium, Ho | HNO ₃ | Ho ₂ O ₃ | 125 mL | MSHO-10PPM |
| Indium, In | HNO ₃ | In metal | 125 mL | MSIN-10PPM |
| Iron, Fe | HNO ₃ | Fe metal | 125 mL | MSFE-10PPM |
| Lead, Pb | HNO ₃ | Pb(NO ₃) ₂ | 125 mL | MSPB-10PPM |
| Lithium, Li | HNO ₃ | Li ₂ CO ₃ | 125 mL | MSLI-10PPM |
| ⁶ Lithium, ⁶ Li | HNO ₃ | ⁶ Li metal | 125 mL | MS6LI-10PPM |
| Magnesium, Mg | HNO ₃ | Mg metal | 125 mL | MSMG-10PPM |
| Manganese, Mn | HNO ₃ | Mn metal | 125 mL | MSMN-10PPM |
| Mercury, Hg | HCl | Hg metal | 125 mL | MSHG-10PPM |
| Mercury, Hg | HNO ₃ | Hg metal | 125 mL | MSHGN-10PPM |
| Molybdenum, Mo | NH ₄ OH | (NH ₄) ₂ MoO ₄ | 125 mL | MSMO-10PPM |
| Nickel, Ni | HNO ₃ | Ni metal | 125 mL | MSNI-10PPM |
| Osmium, Os | HCl | (NH ₄) ₂ OsCl ₆ | 125 mL | MSOS-10PPM |
| Phosphorus, P | H ₂ O | H ₃ PO ₄ | 125 mL | MSP-10PPM |
| Platinum, Pt | HCl | PtCl ₄ | 125 mL | MSPT-10PPM |
| Potassium, K | HNO ₃ | KNO ₃ | 125 mL | MSK-10PPM |
| Rhodium, Rh | HCl | RhCl ₃ | 125 mL | MSRH-10PPM |
| Rhodium, Rh | HNO ₃ | RhNO ₃ | 125 mL | MSRHN-10PPM |
| Scandium, Sc | HNO ₃ | Sc ₂ O ₃ | 125 mL | MSSC-10PPM |
| Selenium, Se | HNO ₃ | Se metal | 125 mL | MSSe-10PPM |
| Silicon, Si | HNO ₃ / HF | SiO ₂ | 125 mL | MSSI-10PPM |
| Silver, Ag | HNO ₃ | Ag metal | 125 mL | MSAG-10PPM |
| Sodium, Na | HNO ₃ | Na ₂ CO ₃ | 125 mL | MSNA-10PPM |
| Strontium, Sr | HNO ₃ | SrCO ₃ | 125 mL | MSSR-10PPM |
| Sulfur, S | H ₂ O | H ₂ SO ₄ | 125 mL | MSS-10PPM |
| Tellurium, Te | HNO ₃ | Te Metal | 125 mL | MSTEN-10PPM |
| Terbium, Tb | HNO ₃ | Tb ₄ O ₇ | 125 mL | MSTB-10PPM |
| Thallium, Tl | HNO ₃ | TlNO ₃ | 125 mL | MSTL-10PPM |
| Thorium, Th | HNO ₃ | Th(NO ₃) ₄ •4H ₂ O | 125 mL | MSTH-10PPM |
| Tin, Sn | HNO ₃ / HF | Sn metal | 125 mL | MSSN-10PPM |
| Titanium, Ti | HNO ₃ / HF | Ti metal | 125 mL | MSTI-10PPM |
| Tungsten, W | HNO ₃ / HF | W Metal | 125 mL | MSW-10PPM |
| Uranium, U | HNO ₃ | UO ₂ (NO ₃) ₂ | 125 mL | MSU-10PPM |
| Vanadium, V | HNO ₃ | V ₂ O ₅ | 125 mL | MSV-10PPM |
| Yttrium, Y | HNO ₃ | Y ₂ O ₃ | 125 mL | MSY-10PPM |
| Zinc, Zn | HNO ₃ | Zn metal | 125 mL | MSSZ-10PPM |

SINGLE-ELEMENT STANDARDS

100 µg/mL Standards

Custom 100 µg/mL standards are available upon request.

100 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|-----------------------------|---|--------|----------------|
| Aluminum, Al | HNO ₃ | Al metal | 125 mL | MSAL-100PPM |
| Antimony, Sb | HNO ₃ / Tartaric | Sb metal | 125 mL | MSSB-100PPM |
| Arsenic, As | HNO ₃ | As metal | 125 mL | MSAS-100PPM |
| Barium, Ba | HNO ₃ | Ba(NO ₃) ₂ | 125 mL | MSBA-100PPM |
| Beryllium, Be | HNO ₃ | Be ₄ O(C ₂ H ₃ O ₂) ₆ | 125 mL | MSBE-100PPM |
| Bismuth, Bi | HNO ₃ | Bi metal | 125 mL | MSBI-100PPM |
| Boron, B | HNO ₃ | H ₃ BO ₃ | 125 mL | MSB-100PPM |
| Cadmium, Cd | HNO ₃ | Cd metal | 125 mL | MSCD-100PPM |
| Calcium, Ca | HNO ₃ | CaO | 125 mL | MSCA-100PPM |
| Cerium, Ce | HNO ₃ | CeO ₂ | 125 mL | MSCE-100PPM |
| Cesium, Cs | HNO ₃ | CsNO ₃ | 125 mL | MSCS-100PPM |
| Chromium ⁺³ , Cr ⁺³ | HNO ₃ | Cr metal | 125 mL | MSCR(3)-100PPM |
| Chromium ⁺⁶ , Cr ⁺⁶ | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | MSCR(6)-100PPM |
| Cobalt, Co | HNO ₃ | Co metal | 125 mL | MSCO-100PPM |
| Copper, Cu | HNO ₃ | Cu metal | 125 mL | MSCU-100PPM |
| Germanium, Ge | HNO ₃ / HF | Ge metal | 125 mL | MSGE-100PPM |
| Gold, Au | HCl | HAuCl ₄ •xH ₂ O | 125 mL | MSAU-100PPM |
| Hafnium, Hf | HNO ₃ / HF | HfO ₂ | 125 mL | MSHF-100PPM |
| Holmium, Ho | HNO ₃ | Ho ₂ O ₃ | 125 mL | MSHO-100PPM |
| Indium, In | HNO ₃ | In metal | 125 mL | MSIN-100PPM |
| Iron, Fe | HNO ₃ | Fe metal | 125 mL | MSFE-100PPM |
| Lead, Pb | HNO ₃ | Pb(NO ₃) ₂ | 125 mL | MSPB-100PPM |
| Lithium, Li | HNO ₃ | Li ₂ CO ₃ | 125 mL | MSLI-100PPM |
| ⁶ Lithium, ⁶ Li | HNO ₃ | ⁶ Li metal | 125 mL | MS6LI-100PPM |
| Magnesium, Mg | HNO ₃ | Mg metal | 125 mL | MSMG-100PPM |
| Manganese, Mn | HNO ₃ | Mn metal | 125 mL | MSMN-100PPM |
| Mercury, Hg | HCl | Hg metal | 125 mL | MSHG-100PPM |
| Mercury, Hg | HNO ₃ | Hg metal | 125 mL | MSHGN-100PPM |
| Molybdenum, Mo | NH ₄ OH | (NH ₄) ₂ MoO ₄ | 125 mL | MSMO-100PPM |
| Nickel, Ni | HNO ₃ | Ni metal | 125 mL | MSNI-100PPM |
| Osmium, Os | HCl | (NH ₄) ₂ OsCl ₆ | 125 mL | MSOS-100PPM |
| Phosphorus, P | H ₂ O | H ₃ PO ₄ | 125 mL | MSP-100PPM |
| Platinum, Pt | HCl | PtCl ₄ | 125 mL | MSPT-100PPM |
| Potassium, K | HNO ₃ | KNO ₃ | 125 mL | MSK-100PPM |
| Rhodium, Rh | HCl | RhCl ₃ | 125 mL | MSRH-100PPM |
| Rhodium, Rh | HNO ₃ | RhNO ₃ | 125 mL | MSRHN-100PPM |
| Scandium, Sc | HNO ₃ | Sc ₂ O ₃ | 125 mL | MSSC-100PPM |
| Selenium, Se | HNO ₃ | Se metal | 125 mL | MSSE-100PPM |
| Silicon, Si | HNO ₃ / HF | SiO ₂ | 125 mL | MSSI-100PPM |
| Silver, Ag | HNO ₃ | Ag metal | 125 mL | MSAG-100PPM |
| Sodium, Na | HNO ₃ | Na ₂ CO ₃ | 125 mL | MSNA-100PPM |
| Strontium, Sr | HNO ₃ | SrCO ₃ | 125 mL | MSSR-100PPM |
| Sulfur, S | H ₂ O | H ₂ SO ₄ | 125 mL | MSS-100PPM |
| Tellurium, Te | HNO ₃ | Te Metal | 125 mL | MSTEN-100PPM |
| Terbium, Tb | HNO ₃ | Tb ₄ O ₇ | 125 mL | MSTB-100PPM |
| Thallium, Tl | HNO ₃ | TlNO ₃ | 125 mL | MSTL-100PPM |
| Thorium, Th | HNO ₃ | Th(NO ₃) ₄ •4H ₂ O | 125 mL | MSTH-100PPM |
| Tin, Sn | HNO ₃ / HF | Sn metal | 125 mL | MSSN-100PPM |
| Titanium, Ti | HNO ₃ / HF | Ti metal | 125 mL | MSTI-100PPM |
| Tungsten, W | HNO ₃ / HF | W Metal | 125 mL | MSW-100PPM |
| Uranium, U | HNO ₃ | UO ₂ (NO ₃) ₂ | 125 mL | MSU-100PPM |
| Vanadium, V | HNO ₃ | V ₂ O ₅ | 125 mL | MSV-100PPM |
| Yttrium, Y | HNO ₃ | Y ₂ O ₃ | 125 mL | MSY-100PPM |
| Zinc, Zn | HNO ₃ | Zn metal | 125 mL | MSZN-100PPM |

Custom 1,000 µg/mL standards are available upon request.

1,000 µg/mL


| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|----------------------------------|---|--------|------------|
| Aluminum, Al | HNO ₃ | Al metal | 125 mL | CGAL1-1 |
| | | | 500 mL | CGAL1-5 |
| Aluminum, Al | HCl | Al metal | 125 mL | CGALCL1-1 |
| | | | 500 mL | CGALCL1-5 |
| Antimony, Sb | HNO ₃ / Tartaric Acid | Sb metal | 125 mL | CGSB1-1 |
| | | | 500 mL | CGSB1-5 |
| Antimony, Sb | HNO ₃ / HF | Sb metal | 125 mL | CGSBF1-1 |
| | | | 500 mL | CGSBF1-5 |
| Arsenic, As | HNO ₃ | As metal | 125 mL | CGAS1-1 |
| | | | 500 mL | CGAS1-5 |
| Barium, Ba | HNO ₃ | Ba(NO ₃) ₂ | 125 mL | CGBA1-1 |
| | | | 500 mL | CGBA1-5 |
| Beryllium, Be | HNO ₃ | Be ₄ O(C ₂ H ₃ O ₂) ₆ | 125 mL | CGBE1-1 |
| | | | 500 mL | CGBE1-5 |
| Bismuth, Bi Can be used as an Internal Standard for ICP-MS. | HNO ₃ | Bi metal | 125 mL | CGBI1-1 |
| | | | 500 mL | CGBI1-5 |
| Boron, B | NH ₄ OH | H ₃ BO ₃ | 125 mL | CGB1-1 |
| | | | 500 mL | CGB1-5 |
| Bromide, Br- To be used for analyzing Bromide by ICP-OES. | H ₂ O | NH ₄ Br | 125 mL | CGICBR1-1 |
| | | | 500 mL | CGICBR1-5 |
| Cadmium, Cd | HNO ₃ | Cd metal | 125 mL | CGCD1-1 |
| | | | 500 mL | CGCD1-5 |
| Calcium, Ca | HNO ₃ | CaO | 125 mL | CGCA1-1 |
| | | | 500 mL | CGCA1-5 |
| Carbon, C No metallic impurities. | HNO ₃ | Tartaric acid | 125 mL | CGC1-1 |
| | | | 500 mL | CGC1-5 |
| Carbon, C To be used for TOC as per standard methods. | H ₂ O | KHP | 125 mL | TOCKHP1-1 |
| | | | 500 mL | TOCKHP1-5 |
| Cerium, Ce | HNO ₃ | CeO ₂ | 125 mL | CGCE1-1 |
| | | | 500 mL | CGCE1-5 |
| Cesium, Cs | HNO ₃ | CsNO ₃ | 125 mL | CGCS1-1 |
| | | | 500 mL | CGCS1-5 |
| Chloride, Cl- To be used for analyzing Chloride by ICP-OES. | H ₂ O | NH ₄ Cl | 125 mL | CGICCL1-1 |
| | | | 500 mL | CGICCL1-5 |
| Chromium⁺³, Cr⁺³ | HNO ₃ | Cr metal | 125 mL | CGCR(3)1-1 |
| | | | 500 mL | CGCR(3)1-5 |
| Chromium⁺⁶, Cr⁺⁶ | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | CGCR(6)1-1 |
| | | | 500 mL | CGCR(6)1-5 |
| Cobalt, Co | HNO ₃ | Co metal | 125 mL | CGCO1-1 |
| | | | 500 mL | CGCO1-5 |
| Copper, Cu | HNO ₃ | Cu metal | 125 mL | CGCU1-1 |
| | | | 500 mL | CGCU1-5 |
| Dysprosium, Dy | HNO ₃ | Dy ₂ O ₃ | 125 mL | CGDY1-1 |
| | | | 500 mL | CGDY1-5 |
| Erbium, Er | HNO ₃ | Er ₂ O ₃ | 125 mL | CGER1-1 |
| | | | 500 mL | CGER1-5 |
| Europium, Eu | HNO ₃ | Eu ₂ O ₃ | 125 mL | CGEU1-1 |
| | | | 500 mL | CGEU1-5 |

SINGLE-ELEMENT STANDARDS

1,000 µg/mL Standards


Custom 1,000 µg/mL standards are available upon request.

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|-------------------------------|---|--------|-----------|
| Gadolinium, Gd | HNO ₃ | Gd ₂ O ₃ | 125 mL | CGGD1-1 |
| | | | 500 mL | CGGD1-5 |
| Gallium, Ga | HNO ₃ | Ga metal | 125 mL | CGGA1-1 |
| | | | 500 mL | CGGA1-5 |
| Germanium, Ge | HNO ₃ / HF | Ge metal | 125 mL | CGGE1-1 |
| | | | 500 mL | CGGE1-5 |
| Gold, Au | HCl | HAuCl ₄ •xH ₂ O | 125 mL | CGAU1-1 |
| | | | 500 mL | CGAU1-5 |
| Gold, Au | HNO ₃ | HAuCl ₄ •xH ₂ O | 125 mL | CGAUN1-1 |
| | | | 500 mL | CGAUN1-5 |
| Hafnium, Hf | HNO ₃ / HF | HfO ₂ | 125 mL | CGHF1-1 |
| | | | 500 mL | CGHF1-5 |
| Holmium, Ho Can be used as an Internal Standard for ICP-MS. | HNO ₃ | Ho ₂ O ₃ | 125 mL | CGHO1-1 |
| | | | 500 mL | CGHO1-5 |
| Indium, In Can be used as an Internal Standard for ICP-MS. | HNO ₃ | In metal | 125 mL | CGIN1-1 |
| | | | 500 mL | CGIN1-5 |
|  Iodide, I Can be used for analyzing Iodide by ICP-OES. | H ₂ O / stabilizer | NH ₄ I | 125 mL | CGIC11-1 |
| | | | 500 mL | CGIC11-5 |
| Iridium, Ir | HCl | IrCl ₃ | 125 mL | CGIR1-1 |
| | | | 500 mL | CGIR1-5 |
| Iron, Fe | HNO ₃ | Fe metal | 125 mL | CGFE1-1 |
| | | | 500 mL | CGFE1-5 |
| Lanthanum, La | HNO ₃ | La ₂ O ₃ | 125 mL | CGLA1-1 |
| | | | 500 mL | CGLA1-5 |
| Lead, Pb | HNO ₃ | Pb(NO ₃) ₂ | 125 mL | CGPB1-1 |
| | | | 500 mL | CGPB1-5 |
| Lithium, Li | HNO ₃ | Li ₂ CO ₃ | 125 mL | CGLI1-1 |
| | | | 500 mL | CGLI1-5 |
| ⁶Lithium, ⁶Li Can be used as an Internal Standard for ICP-MS. | HNO ₃ | ⁶ Li metal | 125 mL | CG6LI1-1 |
| | | | 500 mL | CG6LI1-5 |
| Lutetium, Lu | HNO ₃ | Lu ₂ O ₃ | 125 mL | CGLU1-1 |
| | | | 500 mL | CGLU1-5 |
| Magnesium, Mg | HNO ₃ | Mg metal | 125 mL | CGMG1-1 |
| | | | 500 mL | CGMG1-5 |
| Manganese, Mn | HNO ₃ | Mn metal | 125 mL | CGMN1-1 |
| | | | 500 mL | CGMN1-5 |
| Mercury, Hg | HNO ₃ | Hg metal | 125 mL | CGHG1-1 |
| | | | 500 mL | CGHG1-5 |
| Molybdenum, Mo | NH ₄ OH | (NH ₄) ₂ MoO ₄ | 125 mL | CGM01-1 |
| | | | 500 mL | CGM01-5 |
| Neodymium, Nd | HNO ₃ | Nd ₂ O ₃ | 125 mL | CGND1-1 |
| | | | 500 mL | CGND1-5 |
| Nickel, Ni | HNO ₃ | Ni metal | 125 mL | CGNI1-1 |
| | | | 500 mL | CGNI1-5 |
| Niobium, Nb | HNO ₃ / HF | Nb ₂ O ₅ | 125 mL | CGNB1-1 |
| | | | 500 mL | CGNB1-5 |
| Osmium, Os | HCl | (NH ₄) ₂ OsCl ₆ | 125 mL | CGOS1-1 |
| | | | 500 mL | CGOS1-5 |

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1,000 µg/mL


| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|-----------------------|---|--------|------------|
| Palladium, Pd | HNO ₃ | Pd(NO ₃) ₂ | 125 mL | CGPDN1-1 |
| | | | 500 mL | CGPDN1-5 |
| Palladium, Pd | HCl | PdCl ₂ | 125 mL | CGPD1-1 |
| | | | 500 mL | CGPD1-5 |
| Phosphorus, P | H ₂ O | H ₃ PO ₄ | 125 mL | CGP1-1 |
| | | | 500 mL | CGP1-5 |
| Platinum, Pt | HNO ₃ | PtCl ₄ | 125 mL | CGPTN1-1 |
| | | | 500 mL | CGPTN1-5 |
| Platinum, Pt | HCl | PtCl ₄ | 125 mL | CGPT1-1 |
| | | | 500 mL | CGPT1-5 |
|  Platinum, Pt Chloride Free | HNO ₃ | Pt(NO ₃) ₂ (NH ₃) ₄ | 125 mL | CGPTNO31-1 |
| | | | 500 mL | CGPTNO31-5 |
| Potassium, K | HNO ₃ | KNO ₃ | 125 mL | CGK1-1 |
| | | | 500 mL | CGK1-5 |
| Praseodymium, Pr | HNO ₃ | Pr ₆ O ₁₁ | 125 mL | CGPR1-1 |
| | | | 500 mL | CGPR1-5 |
| Rhenium, Re | HNO ₃ | Re metal | 125 mL | CGRE1-1 |
| | | | 500 mL | CGRE1-5 |
| Rhodium, Rh Can be used as an Internal Standard for ICP-MS. | HCl | RhCl ₃ | 125 mL | CGRH1-1 |
| | | | 500 mL | CGRH1-5 |
| Rhodium, Rh Can be used as an Internal Standard for ICP-MS. | HNO ₃ | RhNO ₃ | 125 mL | CGRHN1-1 |
| | | | 500 mL | CGRHN1-5 |
| Rubidium, Rb | HNO ₃ | RbNO ₃ | 125 mL | CGRB1-1 |
| | | | 500 mL | CGRB1-5 |
| Ruthenium, Ru | HCl | RuCl ₃ | 125 mL | CGRU1-1 |
| | | | 500 mL | CGRU1-5 |
| Samarium, Sm | HNO ₃ | Sm ₂ O ₃ | 125 mL | CGSM1-1 |
| | | | 500 mL | CGSM1-5 |
| Scandium, Sc Can be used as an Internal Standard for ICP-MS. | HNO ₃ | Sc ₂ O ₃ | 125 mL | CGSC1-1 |
| | | | 500 mL | CGSC1-5 |
| Selenium⁺, Se⁺ | HNO ₃ | Se metal | 125 mL | CGSE(4)1-1 |
| | | | 500 mL | CGSE(4)1-5 |
| Silica, SiO₂ | HNO ₃ / HF | SiO ₂ | 125 mL | CGSIO1-1 |
| | | | 500 mL | CGSIO1-5 |
| Silica, SiO₂ | NaOH | SiO ₂ | 125 mL | CGSIONA1-1 |
| | | | 500 mL | CGSIONA1-5 |
| Silicon, Si | HNO ₃ / HF | SiO ₂ | 125 mL | CGSI1-1 |
| | | | 500 mL | CGSI1-5 |
| Silicon, Si | NaOH | SiO ₂ | 125 mL | CGSINA1-1 |
| | | | 500 mL | CGSINA1-5 |
| Silver, Ag | HNO ₃ | Ag metal | 125 mL | CGAG1-1 |
| | | | 500 mL | CGAG1-5 |
| Sodium, Na | HNO ₃ | Na ₂ CO ₃ | 125 mL | CGNA1-1 |
| | | | 500 mL | CGNA1-5 |
| Strontium, Sr | HNO ₃ | SrCO ₃ | 125 mL | CGSR1-1 |
| | | | 500 mL | CGSR1-5 |

SINGLE-ELEMENT STANDARDS

1,000 µg/mL Standards

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1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|-----------------------|--|------------------|------------------------|
| Sulfur, S Prevents incompatibility issues when mixing with Ba and Pb. | H ₂ O | Methanesulfonic acid | 125 mL 500 mL | CGMSA1-1 CGMSA1-5 |
| Sulfur, S | H ₂ O | H ₂ SO ₄ | 125 mL 500 mL | CGS1-1 CGS1-5 |
| Tantalum, Ta | HNO ₃ / HF | Ta metal | 125 mL 500 mL | CGTA1-1 CGTA1-5 |
| Tellurium, Te | HCl | Te metal | 125 mL 500 mL | CGTE1-1 CGTE1-5 |
| Tellurium, Te | HNO ₃ | Te metal | 125 mL 500 mL | CGTEN1-1 CGTEN1-5 |
| Terbium, Tb Can be used as an Internal Standard for ICP-MS. | HNO ₃ | Tb ₄ O ₇ | 125 mL 500 mL | CGTB1-1 CGTB1-5 |
| Thallium, Tl | HNO ₃ | TlNO ₃ | 125 mL 500 mL | CGTL1-1 CGTL1-5 |
| Thorium, Th | HNO ₃ | Th(NO ₃) ₄ •4H ₂ O | 125 mL 500 mL | CGTH1-1 CGTH1-5 |
| Thulium, Tm | HNO ₃ | Tm ₂ O ₃ | 125 mL 500 mL | CGTM1-1 CGTM1-5 |
| Tin, Sn | HCl | Sn metal | 125 mL 500 mL | CGSNCL1-1 CGSNCL1-5 |
| Tin, Sn | HNO ₃ / HF | Sn metal | 125 mL 500 mL | CGSN1-1 CGSN1-5 |
| Titanium, Ti | HNO ₃ / HF | Ti metal | 125 mL 500 mL | CGTI1-1 CGTI1-5 |
| Tungsten, W | HNO ₃ / HF | W metal | 125 mL 500 mL | CGW1-1 CGW1-5 |
|  Tungsten, W | H ₂ O | Ammonium Metatungstate | 125 mL 500 mL | CGWH201-1 CGWH201-5 |
| Uranium, U | HNO ₃ | UO ₂ (NO ₃) ₂ | 125 mL 500 mL | CGU1-1 CGU1-5 |
| Vanadium, V | HNO ₃ | V ₂ O ₅ | 125 mL 500 mL | CGV1-1 CGV1-5 |
| Ytterbium, Yb | HNO ₃ | Yb ₂ O ₃ | 125 mL 500 mL | CGYB1-1 CGYB1-5 |
| Yttrium, Y Can be used as an Internal Standard for ICP-MS. | HNO ₃ | Y ₂ O ₃ | 125 mL 500 mL | CGY1-1 CGY1-5 |
| Zinc, Zn | HNO ₃ | Zn metal | 125 mL 500 mL | CGZN1-1 CGZN1-5 |
| Zirconium, Zr | HNO ₃ / HF | ZrO ₂ | 125 mL 500 mL | CGZR1-1 CGZR1-5 |

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10,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|----------------------------------|---|--------|-------------|
| Aluminum, Al | HNO ₃ | Al metal | 125 mL | CGAL10-1 |
| | | | 500 mL | CGAL10-5 |
| Antimony, Sb | HNO ₃ / Tartaric Acid | Sb metal | 125 mL | CGSB10-1 |
| | | | 500 mL | CGSB10-5 |
| Arsenic, As | HNO ₃ | As metal | 125 mL | CGAS10-1 |
| | | | 500 mL | CGAS10-5 |
| Barium, Ba | HNO ₃ | Ba(NO ₃) ₂ | 125 mL | CGBA10-1 |
| | | | 500 mL | CGBA10-5 |
| Beryllium, Be | HNO ₃ | Be ₄ O(C ₂ H ₃ O ₂) ₆ | 125 mL | CGBE10-1 |
| | | | 500 mL | CGBE10-5 |
| Bismuth, Bi | HNO ₃ | Bi metal | 125 mL | CGBI10-1 |
| | | | 500 mL | CGBI10-5 |
| Boron, B | NH ₄ OH | H ₃ BO ₃ | 125 mL | CGB10-1 |
| | | | 500 mL | CGB10-5 |
| Cadmium, Cd | HNO ₃ | Cd metal | 125 mL | CGCD10-1 |
| | | | 500 mL | CGCD10-5 |
| Calcium, Ca | HNO ₃ | CaO | 125 mL | CGCA10-1 |
| | | | 500 mL | CGCA10-5 |
| Carbon, C | HNO ₃ | Tartaric acid | 125 mL | CGC10-1 |
| | | | 500 mL | CGC10-5 |
| Cerium, Ce | HNO ₃ | CeO ₂ | 125 mL | CGCE10-1 |
| | | | 500 mL | CGCE10-5 |
| Cesium, Cs | HNO ₃ | CsNO ₃ | 125 mL | CGCS10-1 |
| | | | 500 mL | CGCS10-5 |
| Chromium⁺³, Cr³⁺ | HNO ₃ | Cr metal | 125 mL | CGCR(3)10-1 |
| | | | 500 mL | CGCR(3)10-5 |
| Cobalt, Co <small>Can be used as an Internal Standard for ICP-OES.</small> | HNO ₃ | Co metal | 125 mL | CGCO10-1 |
| | | | 500 mL | CGCO10-5 |
| Copper, Cu | HNO ₃ | Cu metal | 125 mL | CGCU10-1 |
| | | | 500 mL | CGCU10-5 |
| Dysprosium, Dy | HNO ₃ | Dy ₂ O ₃ | 125 mL | CGDY10-1 |
| | | | 500 mL | CGDY10-5 |
| Erbium, Er | HNO ₃ | Er ₂ O ₃ | 125 mL | CGER10-1 |
| | | | 500 mL | CGER10-5 |
| Europium, Eu | HNO ₃ | Eu ₂ O ₃ | 125 mL | CGEU10-1 |
| | | | 500 mL | CGEU10-5 |
| Gadolinium, Gd | HNO ₃ | Gd ₂ O ₃ | 125 mL | CGGD10-1 |
| | | | 500 mL | CGGD10-5 |
| Gallium, Ga | HNO ₃ | Ga metal | 125 mL | CGGA10-1 |
| | | | 500 mL | CGGA10-5 |
| Germanium, Ge | HNO ₃ / HF | Ge metal | 125 mL | CGGE10-1 |
| | | | 500 mL | CGGE10-5 |
| Gold, Au | HCl | HAuCl ₄ •xH ₂ O | 125 mL | CGAU10-1 |
| | | | 500 mL | CGAU10-5 |
| Hafnium, Hf | HNO ₃ / HF | HfO ₂ | 125 mL | CGHF10-1 |
| | | | 500 mL | CGHF10-5 |
| Holmium, Ho | HNO ₃ | Ho ₂ O ₃ | 125 mL | CGHO10-1 |
| | | | 500 mL | CGHO10-5 |
| Indium, In <small>Can be used as an Internal Standard for ICP-OES.</small> | HNO ₃ | In metal | 125 mL | CGIN10-1 |
| | | | 500 mL | CGIN10-5 |
| Iridium, Ir | HCl | IrCl ₃ | 125 mL | CGIR10-1 |
| | | | 500 mL | CGIR10-5 |

SINGLE-ELEMENT STANDARDS

10,000 µg/mL Standards

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10,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|-----------------------|--|--------|-----------|
| Iron, Fe | HNO ₃ | Fe metal | 125 mL | CGFE10-1 |
| | | | 500 mL | CGFE10-5 |
| Lanthanum, La | HNO ₃ | La ₂ O ₃ | 125 mL | CGLA10-1 |
| | | | 500 mL | CGLA10-5 |
| Lead, Pb | HNO ₃ | Pb(NO ₃) ₂ | 125 mL | CGPB10-1 |
| | | | 500 mL | CGPB10-5 |
| Lithium, Li | HNO ₃ | Li ₂ CO ₃ | 125 mL | CGLI10-1 |
| | | | 500 mL | CGLI10-5 |
| Lutetium, Lu | HNO ₃ | Lu ₂ O ₃ | 125 mL | CGLU10-1 |
| | | | 500 mL | CGLU10-5 |
| Magnesium, Mg | HNO ₃ | Mg metal | 125 mL | CGMG10-1 |
| | | | 500 mL | CGMG10-5 |
| Manganese, Mn | HNO ₃ | Mn metal | 125 mL | CGMN10-1 |
| | | | 500 mL | CGMN10-5 |
| Mercury, Hg | HNO ₃ | Hg metal | 125 mL | CGHG10-1 |
| | | | 500 mL | CGHG10-5 |
| Molybdenum, Mo | NH ₄ OH | (NH ₄) ₂ MoO ₄ | 125 mL | CGMO10-1 |
| | | | 500 mL | CGMO10-5 |
| Neodymium, Nd | HNO ₃ | Nd ₂ O ₃ | 125 mL | CGND10-1 |
| | | | 500 mL | CGND10-5 |
| Nickel, Ni | HNO ₃ | Ni metal | 125 mL | CGNI10-1 |
| | | | 500 mL | CGNI10-5 |
| Niobium, Nb | HNO ₃ / HF | Nb ₂ O ₅ | 125 mL | CGNB10-1 |
| | | | 500 mL | CGNB10-5 |
| Palladium, Pd | HCl | Pd(NO ₃) ₂ | 125 mL | CGPD10-1 |
| | | | 500 mL | CGPD10-5 |
| Phosphorus, P | H ₂ O | H ₃ PO ₄ | 125 mL | CGP10-1 |
| | | | 500 mL | CGP10-5 |
| Platinum, Pt | HCl | PtCl ₄ | 125 mL | CGPT10-1 |
| | | | 500 mL | CGPT10-5 |
| Potassium, K | HNO ₃ | KNO ₃ | 125 mL | CGK10-1 |
| | | | 500 mL | CGK10-5 |
| Praseodymium, Pr | HNO ₃ | Pr ₆ O ₁₁ | 125 mL | CGPR10-1 |
| | | | 500 mL | CGPR10-5 |
| Rhenium, Re | HNO ₃ | Re metal | 125 mL | CGRE10-1 |
| | | | 500 mL | CGRE10-5 |
| Rhodium, Rh | HCl | RhCl ₃ | 125 mL | CGRH10-1 |
| | | | 500 mL | CGRH10-5 |
| Rubidium, Rb | HNO ₃ | RbNO ₃ | 125 mL | CGRB10-1 |
| | | | 500 mL | CGRB10-5 |
| Ruthenium, Ru | HCl | NH ₄ RuCl ₆ | 125 mL | CGRU10-1 |
| | | | 500 mL | CGRU10-5 |
| Samarium, Sm | HNO ₃ | Sm ₂ O ₃ | 125 mL | CGSM10-1 |
| | | | 500 mL | CGSM10-5 |
| Scandium, Sc <small>Can be used as an Internal Standard for ICP-OES.</small> | HNO ₃ | Sc ₂ O ₃ | 125 mL | CGSC10-1 |
| | | | 500 mL | CGSC10-5 |
| Selenium, Se | HNO ₃ | Se metal | 125 mL | CGSE10-1 |
| | | | 500 mL | CGSE10-5 |
| Silicon, Si | HNO ₃ / HF | SiO ₂ | 125 mL | CGSI10-1 |
| | | | 500 mL | CGSI10-5 |
| Silver, Ag | HNO ₃ | Ag metal | 125 mL | CGAG10-1 |
| | | | 500 mL | CGAG10-5 |

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10,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|-----------------------|--|--------|-----------|
| Sodium, Na | HNO ₃ | Na ₂ CO ₃ | 125 mL | CGNA10-1 |
| | | | 500 mL | CGNA10-5 |
| Strontium, Sr | HNO ₃ | SrCO ₃ | 125 mL | CGSR10-1 |
| | | | 500 mL | CGSR10-5 |
| Sulfur, S Prevents incompatibility issues when mixing with Ba and Pb. | H ₂ O | Methanesulfonic acid | 125 mL | CGMSA10-1 |
| | | | 500 mL | CGMSA10-5 |
| Sulfur, S | H ₂ O | H ₂ SO ₄ | 125 mL | CGS10-1 |
| | | | 500 mL | CGS10-5 |
| Tantalum, Ta | HNO ₃ / HF | Ta metal | 125 mL | CGTA10-1 |
| | | | 500 mL | CGTA10-5 |
| Tellurium, Te | HCl | Te metal | 125 mL | CGTE10-1 |
| | | | 500 mL | CGTE10-5 |
| Terbium, Tb | HNO ₃ | Tb ₄ O ₇ | 125 mL | CGTB10-1 |
| | | | 500 mL | CGTB10-5 |
| Thallium, Tl | HNO ₃ | TlNO ₃ | 125 mL | CGTL10-1 |
| | | | 500 mL | CGTL10-5 |
| Thorium, Th | HNO ₃ | Th(NO ₃) ₄ •4H ₂ O | 125 mL | CGTH10-1 |
| | | | 500 mL | CGTH10-5 |
| Thulium, Tm | HNO ₃ | Tm ₂ O ₃ | 125 mL | CGTM10-1 |
| | | | 500 mL | CGTM10-5 |
| Tin, Sn | HNO ₃ / HF | Sn metal | 125 mL | CGSN10-1 |
| | | | 500 mL | CGSN10-5 |
| Titanium, Ti | HNO ₃ / HF | Ti metal | 125 mL | CGTI10-1 |
| | | | 500 mL | CGTI10-5 |
| Tungsten, W | HNO ₃ / HF | W metal | 125 mL | CGW10-1 |
| | | | 500 mL | CGW10-5 |
| Uranium, U | HNO ₃ | UO ₂ (NO ₃) ₂ | 125 mL | CGU10-1 |
| | | | 500 mL | CGU10-5 |
| Vanadium, V | HNO ₃ | V ₂ O ₅ | 125 mL | CGV10-1 |
| | | | 500 mL | CGV10-5 |
| Ytterbium, Yb | HNO ₃ | Yb ₂ O ₃ | 125 mL | CGYB10-1 |
| | | | 500 mL | CGYB10-5 |
| Yttrium, Y Can be used as an Internal Standard for ICP-OES. | HNO ₃ | Y ₂ O ₃ | 125 mL | CGY10-1 |
| | | | 500 mL | CGY10-5 |
| Zinc, Zn | HNO ₃ | Zn metal | 125 mL | CGZN10-1 |
| | | | 500 mL | CGZN10-5 |
| Zirconium, Zr | HF | ZrO ₂ | 125 mL | CGZR10-1 |
| | | | 500 mL | CGZR10-5 |

ISOTOPIC STANDARDS

Isotopic Standards

Custom isotopic standards are available upon request.

| ANALYTE | µg/mL | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|-------|-----------------------|----------------------------------|------------------|----------------------|
| ¹³⁵ Barium, ¹³⁵ Ba | 10 | HNO ₃ | ¹³⁵ BaCO ₃ | 100 mL | MS135BA-10PPM |
| ¹⁰ Boron, ¹⁰ B | 10 | HNO ₃ | ¹⁰ B oxide | 100 mL | MS10B-10PPM |
| ¹¹ Boron, ¹¹ B | 10 | HNO ₃ | ¹¹ B oxide | 100 mL | MS11B-10PPM |
| ¹⁰⁶ Cadmium, ¹⁰⁶ Cd | 10 | HNO ₃ | ¹⁰⁶ Cd metal | 100 mL | MS106CD-10PPM |
| ⁵⁰ Chromium, ⁵⁰ Cr | 10 | HNO ₃ | ⁵⁰ Cr metal | 100 mL | MS50CR-10PPM |
| ⁶⁵ Copper, ⁶⁵ Cu | 10 | HNO ₃ | ⁶⁵ Cu metal | 100 mL | MS65CU-10PPM |
| ⁵⁴ Iron, ⁵⁴ Fe | 10 | HNO ₃ | ⁵⁴ Fe metal | 100 mL | MS54FE-10PPM |
| ⁵⁷ Iron, ⁵⁷ Fe | 10 | HNO ₃ | ⁵⁷ Fe metal | 100 mL | MS57FE-10PPM |
| ²⁰⁴ Lead, ²⁰⁴ Pb | 10 | HNO ₃ | ²⁰⁴ PbCO ₃ | 100 mL | MS204PB-10PPM |
| ²⁰⁶ Lead, ²⁰⁶ Pb | 10 | HNO ₃ | ²⁰⁶ PbCO ₃ | 100 mL | MS206PB-10PPM |
| ²⁰⁷ Lead, ²⁰⁷ Pb | 10 | HNO ₃ | ²⁰⁷ PbCO ₃ | 100 mL | MS207PB-10PPM |
| ⁶ Lithium, ⁶ Li | 10 | HNO ₃ | ⁶ Li metal | 125 mL | MS6LI-10PPM |
| ⁶ Lithium, ⁶ Li | 100 | HNO ₃ | ⁶ Li metal | 125 mL | MS6LI-100PPM |
| ⁶ Lithium, ⁶ Li Can be used as an Internal Standard for ICP-MS. | 1,000 | HNO ₃ | ⁶ Li metal | 125 mL 500 mL | CG6LI1-1 CG6LI1-5 |
| ²⁵ Magnesium, ²⁵ Mg | 10 | HNO ₃ | ²⁵ Mg oxide | 100 mL | MS25MG-10PPM |
| ⁶¹ Nickel, ⁶¹ Ni | 10 | HNO ₃ | ⁶¹ Ni metal | 100 mL | MS61NI-10PPM |
| ⁷⁸ Selenium, ⁷⁸ Se | 10 | HNO ₃ | ⁷⁸ Se metal | 100 mL | MS78SE-10PPM |
| ⁸² Selenium, ⁸² Se | 10 | HNO ₃ | ⁸² Se metal | 100 mL | MS82SE-10PPM |
| ¹⁰⁹ Silver, ¹⁰⁹ Ag | 10 | HNO ₃ | ¹⁰⁹ Ag metal | 100 mL | MS109AG-10PPM |
| ⁸⁶ Strontium, ⁸⁶ Sr | 10 | HNO ₃ | ⁸⁶ SrCO ₃ | 100 mL | MS86SR-10PPM |
| ²⁰³ Thallium, ²⁰³ Tl | 10 | HNO ₃ | ²⁰³ Tl oxide | 100 mL | MS203TL-10PPM |
| ²⁰⁵ Thallium, ²⁰⁵ Tl | 10 | HNO ₃ | ²⁰⁵ Tl oxide | 100 mL | MS205TL-10PPM |
| ¹²² Tin, ¹²² Sn | 10 | HNO ₃ / HF | ¹²² Sn metal | 100 mL | MS122SN-10PPM |
| ⁶⁷ Zinc, ⁶⁷ Zn | 10 | HNO ₃ | ⁶⁷ Zn metal | 100 mL | MS67ZN-10PPM |

Speciation Standards

Custom speciation standards are available upon request.

| ANALYTE | µg/mL | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|--------|---------------------------------|--|------------------|----------------------------|
| Arsenic⁺³, As⁺³ | 1,000 | HCl / NaOH / NaHCO ₃ | As ₂ O ₃ | 125 mL 500 mL | CGAS(3)1-1 CGAS(3)1-5 |
| Arsenic⁺⁵, As⁺⁵ | 1,000 | H ₂ O | As ₂ O ₅ | 125 mL 500 mL | CGAS(5)1-1 CGAS(5)1-5 |
| Chromium⁺³, Cr⁺³ | 10 | HNO ₃ | Cr metal | 125 mL | MSCR(3)-10PPM |
| Chromium⁺³, Cr⁺³ | 100 | HNO ₃ | Cr metal | 125 mL | MSCR(3)-100PPM |
| Chromium⁺³, Cr⁺³ | 1,000 | HNO ₃ | Cr metal | 125 mL 500 mL | CGCR(3)1-1 CGCR(3)1-5 |
| Chromium⁺³, Cr⁺³ | 10,000 | HNO ₃ | Cr metal | 125 mL 500 mL | CGCR(3)10-1 CGCR(3)10-5 |
| Chromium⁺⁶, Cr⁺⁶ | 10 | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | MSCR(6)-10PPM |
| Chromium⁺⁶, Cr⁺⁶ | 100 | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | MSCR(6)-100PPM |
| Chromium⁺⁶, Cr⁺⁶ | 1,000 | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL 500 mL | CGCR(6)1-1 CGCR(6)1-5 |
| Selenium⁺⁴, Se⁺⁴ | 1,000 | HNO ₃ | Se metal | 125 mL 500 mL | CGSE(4)1-1 CGSE(4)1-5 |
| Selenium⁺⁶, Se⁺⁶ | 1,000 | HNO ₃ | Selenic acid | 125 mL 500 mL | CGSE(6)1-1 CGSE(6)1-5 |

Cyanide Standards

Custom cyanide standards are available upon request.

1,000 µg/mL

| ANALYTE | µg/mL | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|-------------------|-------|--------|---------------------------------------|------------------|----------------------|
| Copper, Cu | 1,000 | NaCN | Cu metal | 125 mL 500 mL | AACUCN-1 AACUCN-5 |
| Gold, Au | 1,000 | NaCN | HAuCl ₄ •xH ₂ O | 125 mL 500 mL | AAAUCN-1 AAAUCN-5 |
| Silver, Ag | 1,000 | NaCN | Ag metal | 125 mL 500 mL | AAAGCN-1 AAAGCN-5 |
| Zinc, Zn | 1,000 | NaCN | Zn metal | 125 mL 500 mL | AAZNCN-1 AAZNCN-5 |

MULTI-ELEMENT STANDARDS

USP Method <232> – Elemental Impurities Compliance Standards

For the pharmaceutical industry Inorganic Ventures has developed CRMs to comply with the United States Pharmacopeia (USP) general chapters on elemental impurity USP <232> limits and USP <233> procedures. These methods are for testing inorganic impurities in pharmaceutical products by ICP/MS. The International Conference on Harmonization (ICH) Working Group on Elemental Impurities is in the process of developing a harmonized approach for controlling these impurities as well.

| IV-STOCK-38 | |
|--|-------|
| USP <232> Precious Metals Elemental Impurities | |
| Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL |
| Ir | 100 |
| Os | 100 |
| Pd | 100 |
| Pt | 100 |
| Rh | 100 |
| Ru | 100 |

| IV-STOCK-40 | |
|--|-------|
| USP <232> Oral Elemental Impurities | |
| Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL |
| As | 1.5 |
| Cd | 25 |
| Cu | 1000 |
| Hg | 15 |
| Mo | 100 |
| Ni | 500 |
| Pb | 5 |
| V | 100 |

| IV-STOCK-41 | |
|--|-------|
| USP <232> Parenteral Elemental Impurities | |
| Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL |
| As | 1.5 |
| Cd | 2.5 |
| Cu | 100 |
| Hg | 1.5 |
| Mo | 10 |
| Ni | 50 |
| Pb | 5 |
| V | 10 |



Thomas Kozikowski,
Technical Support Group Supervisor, and
Maurice Harris, Packaging Technician

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Identical or **near identical** formulations.

| Agilent/Varian AV | | |
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| 5183-4681 | IV-STOCK-53 | p.34 |
| 5183-4688 | IV-STOCK-50 | p.33 |
| 5188-6524 | IV-STOCK-51 | p.33 |
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| 5188-6564 | AGI-TS-1 | p.38 |
| 8500-6940 | IV-STOCK-27 | p.32 |
| 8500-6942 | IV-STOCK-29 | p.32 |
| 8500-6944 | IV-STOCK-26 | p.31 |
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| 190005800 | VAR-CAL-7 | p.39 |
| 190024400 | VAR-TS-MS | p.40 |
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| SRM1643 | IV-STOCK-1643 | p.38 |

AV Agilent/Varian

JY Jobin Yvon

M Merck

N NIST

PE Perkin Elmer

S Spectro

T Thermo Scientific

C Common Multi-Element Standards

I Common Multi-Ion Standards

U USP Method <232>

MULTI-ELEMENT STANDARDS

Instrument Cross-Reference Table

| Perkin Elmer PE | | |
|------------------------|---------------------|------|
| Perkin Elmer# | Inorganic Ventures# | Page |
| N0681470 | IV-STOCK-14 | p.30 |
| N8122014 | IV-STOCK-20 | p.30 |
| N8122017 | IV-STOCK-19 | p.30 |
| N8125032 | IV-STOCK-22 | p.31 |
| N9300208 | IV-STOCK-54 | p.34 |
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| CCS-SET (69 Element Set) | p.36 |
| IV-ICPMS-SET (71 Element Set) | p.37 |
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| IV-STOCK-3 | p.28 |
| IV-STOCK-25 | p.31 |
| IV-STOCK-31 | p.32 |
| IV-STOCK-36 | p.33 |
| IV-STOCK-56 | p.34 |
| IV-STOCK-57 | p.34 |
| IV-STOCK-58 | p.34 |
| THM-TS-1 | p.39 |

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| IC-SCS-1 | p.68 |
| IV-STOCK-7 | p.29, 68 |
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| IV-STOCK-41 | p.25, 33 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-1 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 50 | Fe | 15 |
| Al | 100 | Ga | 150 |
| B | 15 | In | 200 |
| Ba | 5 | Mn | 5 |
| Be | 1 | Ni | 50 |
| Bi | 200 | Pb | 200 |
| Cd | 20 | Sr | 1 |
| Co | 20 | Tl | 400 |
| Cr | 25 | Zn | 20 |
| Cu | 20 | | |

| ICP Calibration Standard | | | |
|--------------------------|--------|--|--------|
| IV-STOCK-2 C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 10,000 | Mg | 10,000 |
| K | 10,000 | Na | 10,000 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-3 C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 1,000 | Mg | 1,000 |
| K | 1,000 | Na | 1,000 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-4 JY | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1,000 | In | 1,000 |
| Al | 1,000 | K | 1,000 |
| B | 1,000 | Li | 1,000 |
| Ba | 1,000 | Mg | 1,000 |
| Bi | 1,000 | Mn | 1,000 |
| Ca | 1,000 | Na | 1,000 |
| Cd | 1,000 | Ni | 1,000 |
| Co | 1,000 | Pb | 1,000 |
| Cr | 1,000 | Sr | 1,000 |
| Cu | 1,000 | Tl | 1,000 |
| Fe | 1,000 | Zn | 1,000 |
| Ga | 1,000 | | |

| Wavelength Calibration Standard | | | |
|---------------------------------|-------|-------------------------------|-------|
| IV-STOCK-5 M | | Volume: 500 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 20 | Mg | 1 |
| As | 20 | Mn | 1 |
| B | 2 | Na | 20 |
| Ba | 2 | Ni | 5 |
| Be | 1 | P | 10 |
| Ca | 10 | Pb | 20 |
| Cd | 2 | Sc | 1 |
| Cr | 2 | Se | 20 |
| Cu | 2 | Sr | 1 |
| Fe | 2 | Te | 20 |
| Hg | 5 | Ti | 2 |
| K | 100 | Y | 1 |
| Li | 2 | Zn | 2 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-6 M S | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Li | 10 |
| Al | 10 | Mg | 10 |
| As | 100 | Mn | 10 |
| B | 100 | Mo | 10 |
| Ba | 10 | Na | 10 |
| Be | 100 | Ni | 10 |
| Bi | 10 | Pb | 10 |
| Ca | 1,000 | Rb | 10 |
| Cd | 10 | Se | 100 |
| Co | 10 | Sr | 10 |
| Cr | 10 | Te | 10 |
| Cu | 10 | Tl | 10 |
| Fe | 100 | U | 10 |
| Ga | 10 | V | 10 |
| K | 10 | Zn | 100 |

C Common Multi-Element Standards

JY Jobin Yvon

M Merck

S Spectro

MULTI-ELEMENT STANDARDS

Identical or near identical formulations | Cross-Reference Blends

| Cation Calibration Standard | | | |
|------------------------------|-------|--|-------|
| IV-STOCK-7 M I | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba ⁺² | 100 | Mn ⁺² | 100 |
| Ca ⁺² | 100 | Na ⁺ | 100 |
| K ⁺ | 100 | NH ₄ ⁺ | 100 |
| Li ⁺ | 100 | Sr ⁺² | 100 |
| Mg ⁺² | 100 | | |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-8 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 100 | K | 100 |
| B | 100 | Li | 100 |
| Ba | 100 | Mg | 100 |
| Be | 100 | Mn | 100 |
| Bi | 100 | Na | 100 |
| Ca | 100 | Ni | 100 |
| Cd | 100 | Pb | 100 |
| Co | 100 | Se | 100 |
| Cr | 100 | Sr | 100 |
| Cu | 100 | Te | 100 |
| Fe | 100 | Tl | 100 |
| Ga | 100 | Zn | 100 |

| ICP Calibration Standard – Toxic Elements | | | |
|---|-------|--|-------|
| IV-STOCK-9 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Pb | 100 |
| Be | 100 | Se | 100 |
| Cd | 100 | Tl | 100 |
| Ni | 100 | | |

| ICP Calibration Standard – Surface Water | | | |
|--|--------|--|--------|
| IV-STOCK-10 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| As | 50 | Mg | 15,000 |
| B | 100 | Mn | 30 |
| Ba | 50 | Mo | 100 |
| Be | 20 | Na | 8,000 |
| Bi | 10 | Ni | 50 |
| Ca | 35,000 | Pb | 25 |
| Cd | 20 | Se | 10 |
| Co | 25 | Sr | 100 |
| Cr | 20 | Tl | 10 |
| Cu | 20 | V | 50 |
| Fe | 100 | Zn | 50 |
| K | 3,000 | | |

*Parts per billion

| ICP Calibration Standard – Sewage Sludge | | | |
|--|-------|--|-------|
| IV-STOCK-11 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cd | 10 | Ni | 200 |
| Cr | 900 | Pb | 900 |
| Cu | 800 | Zn | 2,500 |

| ICP-MS Calibration Standard | | | |
|-----------------------------|-------|--|-------|
| IV-STOCK-12 T | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba | 10 | In | 10 |
| Be | 10 | Li | 10 |
| Bi | 10 | Ni | 10 |
| Ce | 10 | Pb | 10 |
| Co | 10 | U | 10 |

I Common Multi-Ion Standards**M** Merck**T** Thermo Scientific

| ICP Calibration Standard – Trace Metals | | | |
|---|-------|--|-------|
| IV-STOCK-13 M PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 500 | Fe | 100 |
| As | 100 | Mn | 100 |
| Be | 100 | Ni | 100 |
| Cd | 25 | Pb | 100 |
| Co | 100 | Se | 25 |
| Cr | 100 | V | 250 |
| Cu | 100 | Zn | 100 |

| Wavelength Calibration Standard | | | |
|---------------------------------|-------|--|-------|
| IV-STOCK-14 M PE | | Volume: 500 mL Matrix: HCl/HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 20 | Na | 20 |
| K | 100 | Ni | 20 |
| La | 20 | P | 100 |
| Li | 20 | S | 100 |
| Mn | 20 | Sc | 20 |
| Mo | 20 | | |

| ICP-MS Calibration Standard | | | |
|-----------------------------|-------|--|-------|
| IV-STOCK-15 T | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 10 | Li | 10 |
| Fe | 10 | Na | 10 |
| K | 10 | | |

| ICP Calibration Standard – Alkaline Earth Element | | | |
|---|-------|--|-------|
| IV-STOCK-16 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba | 1,000 | Mg | 1,000 |
| Ca | 1,000 | Sr | 1,000 |

- M** Merck
PE Perkin Elmer
T Thermo Scientific

| ICP Calibration Standard – HCl Soluble Elements | | | |
|---|-------|--|-------|
| IV-STOCK-17 M | | Volume: 125 mL Matrix: HCl/HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Hf | 100 | Ta | 100 |
| Ir | 100 | Ti | 100 |
| Sb | 100 | Zr | 100 |
| Sn | 100 | | |

| GFAA Calibration Standard | | | |
|---------------------------|-------|--|-------|
| IV-STOCK-18 M | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Cu | 50 |
| Al | 100 | Fe | 20 |
| As | 100 | Mn | 20 |
| Ba | 50 | Ni | 50 |
| Be | 5 | Pb | 100 |
| Cd | 5 | Sb | 100 |
| Co | 50 | Se | 100 |
| Cr | 20 | Tl | 100 |

| ICP Detection Limit Standard | | | |
|--------------------------------|-------|--|-------|
| IV-STOCK-19 M PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| Be | 10 | Tl | 10 |
| Co | 10 | U | 10 |
| In | 10 | | |

*Parts per billion

| ICP Plasma Setup Solution | | | |
|--------------------------------|-------|---|-------|
| IV-STOCK-20 M PE | | Volume: 1 Liter Matrix: HNO ₃ /HF | |
| Analyte | µg/L* | Analyte | µg/L* |
| Ba | 10 | Pb | 10 |
| Cd | 10 | Rh | 10 |
| Ce | 10 | Sc | 10 |
| Cu | 10 | Tb | 10 |
| Ge | 10 | Tl | 10 |
| Mg | 10 | | |

*Parts per billion

| ICP Calibration Standard | | | |
|--------------------------------|-------|--|-------|
| IV-STOCK-21 M PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | K | 10 |
| Al | 10 | Li | 10 |
| As | 10 | Mg | 10 |
| Ba | 10 | Mn | 10 |
| Be | 10 | Na | 10 |
| Bi | 10 | Ni | 10 |
| Ca | 10 | Pb | 10 |
| Cd | 10 | Rb | 10 |
| Co | 10 | Se | 10 |
| Cr | 10 | Sr | 10 |
| Cs | 10 | Tl | 10 |
| Cu | 10 | U | 10 |
| Fe | 10 | V | 10 |
| Ga | 10 | Zn | 10 |
| In | 10 | | |

| ICP Calibration Standard | | | |
|--------------------------------|-------|--|-------|
| IV-STOCK-22 M PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| Cd | 200 | Pb | 200 |
| Cu | 200 | Rh | 200 |
| Mg | 200 | | |

*Parts per billion

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-23 M | | Volume: 500 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| B | 1 | Lu | 1 |
| Ba | 1 | Na | 1 |
| Co | 1 | Rh | 1 |
| Fe | 1 | Sc | 1 |
| Ga | 1 | Tl | 1 |
| In | 1 | U | 1 |
| K | 1 | Y | 1 |
| Li | 1 | | |

*Parts per billion

| Tuning Solution | | | |
|----------------------|-------|--|-------|
| IV-STOCK-24 M | | Volume: 500 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 50 | Mn | 50 |
| As | 50 | Mo | 50 |
| Ba | 50 | Ni | 50 |
| Cd | 50 | Pb | 50 |
| Co | 50 | Se | 50 |
| Cr | 50 | Sr | 50 |
| Cu | 50 | Zn | 50 |
| K | 500 | | |

| AA Calibration Standard | | | |
|-------------------------|-------|--|-------|
| IV-STOCK-25 C | | Volume: 500 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cr | 3 | Ni | 10 |

| ICP Calibration Standard | | | |
|---------------------------------|-------|--|-------|
| IV-STOCK-26 AV PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ce | 10 | Pr | 10 |
| Dy | 10 | Sc | 10 |
| Er | 10 | Sm | 10 |
| Eu | 10 | Tb | 10 |
| Gd | 10 | Th | 10 |
| Ho | 10 | Tm | 10 |
| La | 10 | Y | 10 |
| Lu | 10 | Yb | 10 |
| Nd | 10 | | |

AV Agilent/Varian**C** Common Multi-Element Standards**M** Merck**PE** Perkin Elmer

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-27 AV | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Li | 10 |
| Al | 10 | Mg | 10 |
| As | 10 | Mn | 10 |
| Ba | 10 | Na | 10 |
| Be | 10 | Ni | 10 |
| Ca | 10 | Pb | 10 |
| Cd | 10 | Rb | 10 |
| Co | 10 | Se | 10 |
| Cr | 10 | Sr | 10 |
| Cs | 10 | Tl | 10 |
| Cu | 10 | U | 10 |
| Fe | 10 | V | 10 |
| Ga | 10 | Zn | 10 |
| K | 10 | | |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-28 AV PE | | Volume: 125 mL Matrix: HCl/HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 10 | Rh | 10 |
| Hf | 10 | Ru | 10 |
| Ir | 10 | Sb | 10 |
| Pd | 10 | Sn | 10 |
| Pt | 10 | Te | 10 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-29 AV PE | | Volume: 125 mL Matrix: HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| B | 10 | S | 10 |
| Ge | 10 | Si | 10 |
| Mo | 10 | Ta | 10 |
| Nb | 10 | Ti | 10 |
| P | 10 | W | 10 |
| Re | 10 | Zr | 10 |

AV Agilent/Varian**C** Common Multi-Element Standards**JY** Jobin Yvon**PE** Perkin Elmer

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-30 PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Be | 10 | Mg | 10 |
| Bi | 10 | Ni | 10 |
| Ce | 10 | Pb | 10 |
| Co | 10 | U | 10 |
| In | 10 | | |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-31 C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 1 | Mg | 0.2 |
| Ba | 0.2 | Mn | 1 |
| Ca | 0.2 | Ni | 5 |
| Cu | 1 | P | 10 |
| K | 5 | Zn | 0.2 |

| Calibration Standard – Mix Majors | | | |
|-----------------------------------|-------|--|-------|
| IV-STOCK-33 AV | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 500 | Mg | 500 |
| Fe | 500 | Na | 500 |
| K | 500 | | |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-34 PE JY | | Volume: 500 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 5,000 | Mg | 5,000 |
| K | 5,000 | Na | 5,000 |

| ICP Calibration Standard | | | |
|--------------------------|-------|--|-------|
| IV-STOCK-35 PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca | 1,000 | Mg | 1,000 |
| Fe | 1,000 | Na | 1,000 |
| K | 1,000 | | |

| ICP Calibration Standard | | | |
|-----------------------------|-------|-------------------------------|-------|
| IV-STOCK-36 C | | Volume: 500 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 100 | Pt | 100 |
| Pd | 100 | | |

| USP <232> Precious Metals Elemental Impurities | | | |
|--|-------|-------------------------------|-------|
| IV-STOCK-38 U | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ir | 100 | Pt | 100 |
| Os | 100 | Rh | 100 |
| Pd | 100 | Ru | 100 |

| USP <232> Oral Elemental Impurities | | | |
|-------------------------------------|-------|--|-------|
| IV-STOCK-40 U | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 1.5 | Mo | 100 |
| Cd | 25 | Ni | 500 |
| Cu | 1000 | Pb | 5 |
| Hg | 15 | V | 100 |

| USP <232> Parenteral Elemental Impurities | | | |
|---|-------|--|-------|
| IV-STOCK-41 U | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 1.5 | Mo | 10 |
| Cd | 2.5 | Ni | 50 |
| Cu | 100 | Pb | 5 |
| Hg | 1.5 | V | 10 |

| N Environmental Calibration Standard | | | |
|---|-------|--|-------|
| IV-STOCK-50 AV | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mn | 10 |
| Al | 10 | Mo | 10 |
| As | 10 | Na | 1000 |
| Ba | 10 | Ni | 10 |
| Be | 10 | Pb | 10 |
| Ca | 1000 | Sb | 10 |
| Cd | 10 | Se | 10 |
| Co | 10 | Th | 10 |
| Cr | 10 | Tl | 10 |
| Cu | 10 | U | 10 |
| Fe | 1000 | V | 10 |
| K | 1000 | Zn | 10 |
| Mg | 1000 | | |

| N 7500 Series PA Tuning Solution 1 (set with IV-Stock-52) | | | |
|---|-------|--|-------|
| IV-STOCK-51 AV | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 5 | Mn | 5 |
| As | 20 | Na | 5 |
| Ba | 5 | Ni | 10 |
| Be | 20 | Pb | 10 |
| Bi | 5 | Sc | 5 |
| Cd | 20 | Sr | 5 |
| Co | 5 | Th | 5 |
| Cr | 5 | Tl | 5 |
| Cu | 5 | U | 5 |
| In | 5 | V | 5 |
| ⁶ Li | 5 | Y | 2.5 |
| Lu | 5 | Yb | 2.5 |
| Mg | 10 | Zn | 20 |

| N 7500 Series PA Tuning Solution 2 (set with IV-Stock-51) | | | |
|---|-------|-------------------------------|-------|
| IV-STOCK-52 AV | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ge | 10 | Ru | 10 |
| Ir | 5 | Sb | 10 |
| Mo | 10 | Sn | 10 |
| Pd | 10 | Ti | 5 |

- AV** Agilent/Varian
C Common Multi-Element Standards
U USP Method <232>

| N Internal Standard | | | |
|--|-------|---|-------|
| IV-STOCK-53 AV PE | | Volume: 125 mL Matrix: HNO ₃ / HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Sc | 10 |
| Ge | 10 | Tb | 10 |
| In | 10 | Y | 10 |
| ⁶ Li | 10 | | |

| N Interference Check Standard | | | |
|--|-------|--|-------|
| IV-STOCK-54 PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 1200 | Mg | 3000 |
| Ca | 6000 | Na | 1000 |
| Fe | 5000 | | |

| N Wavecal Standard | | | |
|---|-------|--|-------|
| IV-STOCK-55 PE | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba | 1 | Li | 10 |
| Ca | 1 | Mn | 10 |
| K | 50 | Na | 10 |
| La | 10 | Sr | 10 |

| N ICP Calibration Standard | | | |
|---|-------|---|-------|
| IV-STOCK-56 C | | Volume: 125 mL Matrix: HNO ₃ / HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Mo | 100 | Sn | 100 |
| Sb | 100 | Ti | 100 |
| Si | 100 | | |

| N ICP Calibration Standard | | | |
|---|-------|---|-------|
| IV-STOCK-57 C | | Volume: 125 mL Matrix: HNO ₃ / HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Mo | 10 | Sn | 10 |
| Sb | 10 | Ti | 10 |

| N ICP Calibration Standard | | | |
|---|-------|-------------------------------|-------|
| IV-STOCK-58 C | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 100 | Pt | 100 |
| Ir | 100 | Re | 100 |
| Os | 100 | Rh | 100 |
| Pd | 100 | Ru | 100 |

| N Anion Calibration Standard | | | |
|---|-------|--|-------|
| IV-STOCK-59 I | | Volume: 125 mL Matrix: H ₂ O | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br⁻ | 1000 | NO₂⁻ | 1000 |
| Cl⁻ | 1000 | PO₄⁻³ | 1000 |
| F⁻ | 1000 | SO₄⁻² | 1000 |
| NO₃⁻ | 1000 | | |

- AV Agilent/Varian
- C Common Multi-Element Standards
- I Common Multi-Ion Standards
- PE Perkin Elmer



Nancy Sue Hicks, Accounting Assistant and
Bruce Johnson, Purchasing Agent

MULTI-ELEMENT STANDARDS

Identical or near identical formulations | Cross-Reference Blends

These elements are grouped for ease of use. Intended for ICP-MS, they can be used individually or combined in any combination upon dilution into 1% HNO₃. Custom calibration standards are available upon request.

65-Element Group

| Rare Earth ICP-MS Standard | | | |
|----------------------------|-------|--|-------|
| CMS-1 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ce | 10 | Pr | 10 |
| Dy | 10 | Sc | 10 |
| Er | 10 | Sm | 10 |
| Eu | 10 | Tb | 10 |
| Gd | 10 | Th | 10 |
| Ho | 10 | Tm | 10 |
| La | 10 | U | 10 |
| Lu | 10 | Y | 10 |
| Nd | 10 | Yb | 10 |

| Hot Plasma ICP-MS Complete Standard | | | |
|-------------------------------------|-------|--|-------|
| CMS-4 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 10 | In | 10 |
| B | 10 | Pb | 10 |
| Ba | 10 | Sb | 10 |
| Be | 10 | Se | 10 |
| Bi | 10 | Tl | 10 |
| Cd | 10 | V | 10 |
| Ga | 10 | | |

| Precious Metals ICP-MS Standard | | | |
|---------------------------------|-------|-------------------------------|-------|
| CMS-2 | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 10 | Re | 10 |
| Ir | 10 | Rh | 10 |
| Pd | 10 | Ru | 10 |
| Pt | 10 | Te | 10 |

| Cool Plasma ICP-MS Complete Standard | | | |
|--------------------------------------|-------|--|-------|
| CMS-5 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Li | 10 |
| Al | 10 | Mg | 10 |
| Ca | 10 | Mn | 10 |
| Co | 10 | Na | 10 |
| Cr | 10 | Ni | 10 |
| Cs | 10 | Rb | 10 |
| Cu | 10 | Sr | 10 |
| Fe | 10 | Zn | 10 |
| K | 10 | | |

| Fluoride Soluble ICP-MS Standard | | | |
|----------------------------------|-------|--|-------|
| CMS-3 | | Volume: 125 mL Matrix: HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ge | 10 | Ta | 10 |
| Hf | 10 | Ti | 10 |
| Mo | 10 | W | 10 |
| Nb | 10 | Zr | 10 |
| Sn | 10 | | |

C Common Multi-Element Standard

These elements are grouped for ease of use. Intended for ICP-MS, they can be used individually or combined in any combination upon dilution into 1% HNO₃. Custom calibration standards are available upon request.

69-Element Group

| Rare Earth ICP-MS Standard | | | |
|----------------------------|-------|--|-------|
| CCS-1 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ce | 100 | Pr | 100 |
| Dy | 100 | Sc | 100 |
| Er | 100 | Sm | 100 |
| Eu | 100 | Tb | 100 |
| Gd | 100 | Th | 100 |
| Ho | 100 | Tm | 100 |
| La | 100 | U | 100 |
| Lu | 100 | Y | 100 |
| Nd | 100 | Yb | 100 |

| Fluoride Soluble ICP-MS Standard | | | |
|----------------------------------|-------|--|-------|
| CCS-5 | | Volume: 125 mL Matrix: HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| B | 100 | Sb | 100 |
| Ge | 100 | Si | 100 |
| Hf | 100 | Sn | 100 |
| Mo | 100 | Ta | 100 |
| Nb | 100 | Ti | 100 |
| P | 100 | W | 100 |
| Re | 100 | Zr | 100 |
| S | 100 | | |

| Precious Metals ICP-MS Standard | | | |
|---------------------------------|-------|-------------------------------|-------|
| CCS-2 | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 100 | Pt | 100 |
| Ir | 100 | Rh | 100 |
| Pd | 100 | Ru | 100 |

| Transition ICP-MS Standard | | | |
|----------------------------|-------|--|-------|
| CCS-6 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mn | 100 |
| Cd | 100 | Ni | 100 |
| Co | 100 | Pb | 100 |
| Cr | 100 | Tl | 100 |
| Cu | 100 | V | 100 |
| Fe | 100 | Zn | 100 |
| Hg | 100 | | |

| Alkali, Alkaline, Non-Transition ICP-MS Standard | | | |
|--|-------|--|-------|
| CCS-4 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 100 | In | 100 |
| As | 100 | K | 100 |
| Ba | 100 | Li | 100 |
| Be | 100 | Mg | 100 |
| Bi | 100 | Na | 100 |
| Ca | 100 | Rb | 100 |
| Cs | 100 | Se | 100 |
| Ga | 100 | Sr | 100 |

| Tellurium ICP-MS Standard | |
|---------------------------|--|
| MSTEN-100PPM | Volume: 125 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Te | 100 |

C Common Multi-Element Standard

These elements are grouped for ease of use. Intended for ICP-MS, they can be used individually or combined in any combination upon dilution into 1% HNO₃. Custom calibration standards are available upon request.

71-Element Group

| ICP-MS Complete Standard | | | |
|--------------------------|-------|--|-------|
| IV-ICPMS-71A C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Lu | 10 |
| Al | 10 | Mg | 10 |
| As | 10 | Mn | 10 |
| B | 10 | Na | 10 |
| Ba | 10 | Nd | 10 |
| Be | 10 | Ni | 10 |
| Ca | 10 | P | 10 |
| Cd | 10 | Pb | 10 |
| Ce | 10 | Pr | 10 |
| Co | 10 | Rb | 10 |
| Cr | 10 | S | 10 |
| Cs | 10 | Se | 10 |
| Cu | 10 | Sm | 10 |
| Dy | 10 | Sr | 10 |
| Er | 10 | Th | 10 |
| Eu | 10 | Tl | 10 |
| Fe | 10 | Tm | 10 |
| Ga | 10 | U | 10 |
| Gd | 10 | V | 10 |
| Ho | 10 | Yb | 10 |
| K | 10 | Zn | 10 |
| La | 10 | | |

| Lithium ICP-MS Standard | |
|-------------------------|--|
| MSLI-10PPM C | Volume: 125 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Li | 10 |

| ICP-MS Refractory Elements Standard | | | |
|-------------------------------------|-------|---|-------|
| IV-ICPMS-71B C | | Volume: 125 mL Matrix: HNO ₃ / HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ge | 10 | Sn | 10 |
| Hf | 10 | Ta | 10 |
| Mo | 10 | Te | 10 |
| Nb | 10 | Ti | 10 |
| Sb | 10 | W | 10 |
| Si | 10 | Zr | 10 |


| ICP-MS Precious Metals Standard | | | |
|---------------------------------|-------|-------------------------------|-------|
| IV-ICPMS-71C C | | Volume: 125 mL Matrix: HCl | |
| Analyte | µg/mL | Analyte | µg/mL |
| Au | 10 | Pt | 10 |
| Ir | 10 | Re | 10 |
| Os | 10 | Rh | 10 |
| Pd | 10 | Ru | 10 |

| Mercury ICP-MS Standard | |
|-------------------------|-------------------------------|
| MSHG-10PPM C | Volume: 125 mL Matrix: HCl |
| Analyte | µg/mL |
| Hg | 10 |


| ICP-MS Internal Standard | | | |
|--------------------------|-------|--|-------|
| IV-ICPMS-71D C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Sc | 10 |
| In | 10 | Tb | 10 |
| ⁶ Li | 10 | Y | 10 |

C Common Multi-Element Standard


AGI Tuning Solution


| AGI Tuning Solution | | | |
|--|-------|--|-------|
| AGI-TS-1  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ce | 10 | Tl | 10 |
| Co | 10 | Y | 10 |
| Li | 10 | | |

CIROS Tuning Solution


| CIROS Tuning Solution | | | |
|--|-------|--|-------|
| CIROS-OES-TS  | | Volume: 125 mL Matrix: HCl/HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Fe | 10 | P | 10 |
| K | 10 | S | 50 |
| La | 10 | Sc | 10 |
| Mg | 5 | Ti | 10 |
| Mn | 5 | | |

GENESIS Calibration Standard

| GENESIS Calibration Standard | | | |
|---|-------|--|-------|
| GENESIS-ICAL  | | Volume: 125 mL Matrix: HNO ₃ /HCl/HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Be | 2 | Na | 5 |
| Ca | 1 | Ni | 10 |
| Ce | 10 | P | 10 |
| Cu | 10 | S | 50 |
| Eu | 10 | Sc | 5 |
| Fe | 10 | Si | 10 |
| In | 10 | Sr | 2 |
| K | 10 | Ti | 10 |
| Li | 2 | V | 10 |
| Mn | 5 | Y | 10 |
| Mo | 5 | Zr | 10 |


 Agilent/Varian NIST Perkin Elmer Spectro

Trace Metals in Water– SRM1643


| Trace Metals in Water– SRM1643 | | | |
|---|--------|--|--------|
| IV-STOCK-1643  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| Ag | 1 | Mg | 8,000 |
| Al | 142 | Mn | 39 |
| As | 60 | Mo | 121 |
| B | 158 | Na | 21,000 |
| Ba | 544 | Ni | 62 |
| Be | 14 | Pb | 20 |
| Bi | 14 | Rb | 14 |
| Ca | 32,000 | Re | 113 |
| Cd | 7 | Sb | 58 |
| Co | 27 | Se | 12 |
| Cr | 20 | Sr | 323 |
| Cu | 23 | Te | 1 |
| Fe | 98 | Tl | 7 |
| K | 2,000 | V | 38 |
| Li | 17 | Zn | 79 |

*Parts per billion

Instrument Check Standard

| Instrument Check Standard | | | |
|--|-------|--|-------|
| PE-CHK-1  | | Volume: 125 mL Matrix: HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mn | 10 |
| Al | 10 | Ni | 10 |
| As | 10 | Pb | 10 |
| Ba | 10 | Sb | 10 |
| Be | 10 | Se | 10 |
| Cd | 10 | Tl | 10 |
| Co | 10 | V | 10 |
| Cr | 10 | Zn | 10 |
| Cu | 10 | | |

Tuning Solution

| Tuning Solution | | | |
|---|-------|--|-------|
| PE-TS-1  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba | 10 | Mg | 10 |
| Be | 10 | Pb | 10 |
| Ce | 10 | Rh | 10 |
| Co | 10 | Tl | 10 |
| In | 10 | U | 10 |
| Li | 10 | Y | 10 |

MULTI-ELEMENT STANDARDS

Identical or near identical formulations | Cross-Reference Blends

| N ICP-MS Tuning Solution – Tune B ICAP | | | |
|---|-------|---|-------|
| THERMO-4AREV T | | Volume: 500 mL Matrix: HNO ₃ /HCl | |
| Analyte | µg/L* | Analyte | µg/L* |
| Ba | 1 | In | 1 |
| Bi | 1 | Li | 1 |
| Ce | 1 | U | 1 |
| Co | 1 | | |

*Parts per billion

| N ICP-MS Tuning Solution – ICAPQ | | | |
|---|-------|--|-------|
| THERMO-5A T | | Volume: 250 mL Matrix: HNO ₃ | |
| Analyte | µg/L* | Analyte | µg/L* |
| Ag | 6 | Mg | 10 |
| Al | 10 | Mn | 6 |
| Ba | 4 | Ni | 15 |
| Be | 35 | Rh | 3 |
| Bi | 3 | Sc | 8 |
| Ce | 3 | Sr | 5 |
| Co | 8 | Ta | 3 |
| Cs | 3 | Tb | 3 |
| Cu | 15 | Tl | 4 |
| Ga | 10 | U | 3 |
| Ho | 3 | Y | 3 |
| In | 3 | Zn | 20 |
| Li | 8 | | |

*Parts per billion

| Tuning Solution | | | |
|------------------------|-------|--|-------|
| THM-TS-1 C | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| B | 10 | K | 10 |
| Ba | 10 | Rh | 10 |
| Co | 10 | Sc | 10 |
| Ga | 10 | Na | 10 |
| In | 10 | Th | 10 |
| Fe | 10 | U | 10 |
| Li | 10 | Y | 10 |
| Lu | 10 | | |

| Calibration Standard | | | |
|-----------------------------|-------|---|-------|
| VAR-CAL-1 AV | | Volume: 125 mL Matrix: HNO ₃ / HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Mo | 100 | Sn | 100 |
| Sb | 100 | Ti | 100 |

| Calibration Standard | | | |
|-----------------------------|-------|--|-------|
| VAR-CAL-2 AV | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mn | 100 |
| Al | 100 | Ni | 100 |
| As | 100 | Pb | 100 |
| Ba | 100 | Se | 100 |
| Be | 100 | Th | 100 |
| Cd | 100 | Tl | 100 |
| Co | 100 | U | 100 |
| Cr | 100 | V | 100 |
| Cu | 100 | Zn | 100 |

| Calibration Standard | | | |
|-----------------------------|-------|--|-------|
| VAR-CAL-7 AV | | Volume: 125 mL Matrix: HNO ₃ /HF | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 5 | Mn | 5 |
| As | 5 | Mo | 5 |
| Ba | 5 | Ni | 5 |
| Cd | 5 | Pb | 5 |
| Co | 5 | Se | 5 |
| Cr | 5 | Sr | 5 |
| Cu | 5 | Zn | 5 |
| K | 50 | | |

AV Agilent/Varian**C** Common Multi-Element Standard**T** Thermo Scientific

Cross-Reference Blends

Identical or **near identical** formulations

| ICP Internal Standard | | | |
|------------------------|-------|--|-------|
| VAR-IS-1 | | AV | |
| | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 100 | Sc | 100 |
| In | 100 | Tb | 100 |
| ⁶ Li | 100 | Y | 100 |

| Tuning Solution | | | |
|------------------|-------|--|-------|
| VAR-TS-MS | | AV | |
| | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba | 10 | Mg | 10 |
| Be | 10 | Pb | 10 |
| Ce | 10 | Th | 10 |
| Co | 10 | Tl | 10 |
| In | 10 | | |

Don't see what you need?

Contact us with the solution part number and instrument manufacturer you're seeking and we'll give you a very competitive price!

AV Agilent/Varian

HIGH-PURITY IONIZATION BUFFERS

Ionization Buffers

Ionization buffers are 99.999+% pure. They are analyzed using both axial-view ICP-OES and ICP-MS for 70+ impurities. Custom ionization buffers are available upon request.

| 1% Cesium Ionization Buffer | |
|--|--|
| CSN-ISB-5 | Volume: 500 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Cs | 10,000 |
| High Purity buffer; ideal for Axial View ICP-OES | |

| 2% Lithium Ionization Buffer | |
|------------------------------|--|
| LINB2-5 | Volume: 500 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Li | 20,000 |

| 5% Cesium Ionization Buffer | |
|-----------------------------|--|
| CSN-ISB5-5 | Volume: 500 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Cs | 50,000 |



ILMO3.0

Standards for ILMO3.0 are designed for use with ICP-OES. Custom EPA standards are available upon request.

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 250 | Fe | 1,000 |
| Al | 2,000 | K | 5,000 |
| Ba | 2,000 | Mg | 5,000 |
| Be | 50 | Mn | 500 |
| Ca | 5,000 | Na | 5,000 |
| Co | 500 | Ni | 500 |
| Cr | 200 | V | 500 |
| Cu | 250 | Zn | 500 |

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 1,000 | Se | 1,000 |
| Cd | 500 | Tl | 1,000 |
| Pb | 1,000 | | |

| Calibration Standard | |
|----------------------|---|
| CGSB1-1 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 1,000 |

CICV Standards – Continuing and Initial Calibration Verification

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 125 | Fe | 500 |
| Al | 1,000 | K | 2,500 |
| Ba | 1,000 | Mg | 2,500 |
| Be | 25 | Mn | 250 |
| Ca | 2,500 | Na | 2,500 |
| Co | 250 | Ni | 250 |
| Cr | 100 | V | 250 |
| Cu | 125 | Zn | 250 |

| CICV Standard [†] | |
|----------------------------|--|
| QCP-CICV-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 or 1:500 |
| Analyte | µg/mL |
| Sb | 500 |

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 500 | Se | 500 |
| Cd | 250 | Tl | 500 |
| Pb | 500 | | |

[†]Manufactured from in-house Second Source concentrates.

Lesley Owens, Ph.D., Chemist, R&D, and
Stephan Blaakman, Manufacturing Technician

**CRDL Standards – Contract Required
Detection Limit**

| CRDL Standard | | | |
|------------------|-------|--|-------|
| CRI-CRA-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 200 | Mn | 300 |
| Be | 100 | Ni | 800 |
| Co | 1,000 | V | 1,000 |
| Cr | 200 | Zn | 400 |
| Cu | 500 | | |

| CRDL Standard | |
|------------------|---|
| CRI-CRA-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 600 |

| CRDL Standard | | | |
|------------------|-------|--|-------|
| CRI-CRA-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Se | 50 |
| Cd | 50 | Tl | 100 |
| Pb | 30 | | |

Soil & Water Spike Standards

| Spike Standard* | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 50 | Cu | 250 |
| Al | 2,000 | Fe | 1,000 |
| Ba | 2,000 | Mn | 500 |
| Be | 50 | Ni | 500 |
| Co | 500 | V | 500 |
| Cr | 200 | Zn | 500 |

| Spike Standard* | |
|-------------------|---|
| CLPP-SPK-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:1,000 |
| Analyte | µg/mL |
| Sb | 500 |

| Spike Standard* | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 2,000 | Se | 2,000 |
| Cd | 50 | Tl | 2,000 |
| Pb | 500 | | |

*Instructions included.

Interference Check Standards

| Interference Check Standard | | | |
|-----------------------------|-------|---|-------|
| CLPP-ICS-A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 5,000 | Fe | 2,000 |
| Ca | 5,000 | Mg | 5,000 |

| Interference Check Standard | | | |
|-----------------------------|-------|--|-------|
| CLPP-ICS-B | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Cu | 50 |
| Ba | 50 | Mn | 50 |
| Be | 50 | Ni | 100 |
| Cd | 100 | Pb | 100 |
| Co | 50 | V | 50 |
| Cr | 50 | Zn | 100 |

ILMO4.0

Standards for ILMO4.0 are designed for use with ICP-OES. Custom EPA standards are available upon request.

Calibration Standards

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 250 | Fe | 1,000 |
| Al | 2,000 | K | 5,000 |
| Ba | 2,000 | Mg | 5,000 |
| Be | 50 | Mn | 500 |
| Ca | 5,000 | Na | 5,000 |
| Co | 500 | Ni | 500 |
| Cr | 200 | V | 500 |
| Cu | 250 | Zn | 500 |

| Calibration Standard | |
|----------------------|---|
| CGSB1-1 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 1,000 |

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 1,000 | Se | 1,000 |
| Cd | 500 | Tl | 1,000 |
| Pb | 1,000 | | |

CICV Standards – Continuing and Initial Calibration Verification

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 125 | Fe | 500 |
| Al | 1,000 | K | 2,500 |
| Ba | 1,000 | Mg | 2,500 |
| Be | 25 | Mn | 250 |
| Ca | 2,500 | Na | 2,500 |
| Co | 250 | Ni | 250 |
| Cr | 100 | V | 250 |
| Cu | 125 | Zn | 250 |

| CICV Standard [†] | |
|----------------------------|--|
| QCP-CICV-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 or 1:500 |
| Analyte | µg/mL |
| Sb | 500 |

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 500 | Se | 500 |
| Cd | 250 | Tl | 500 |
| Pb | 500 | | |

[†]Manufactured from in-house Second Source concentrates.

**CRDL Standards – Contract Required
Detection Limit**

| CRDL Standard | | | |
|------------------|-------|--|-------|
| CRI-CRA-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 200 | Mn | 300 |
| Be | 100 | Ni | 800 |
| Co | 1,000 | V | 1,000 |
| Cr | 200 | Zn | 400 |
| Cu | 500 | | |

| CRDL Standard | |
|------------------|---|
| CRI-CRA-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 600 |

| CRDL Standard | | | |
|------------------|-------|--|-------|
| CRI-CRA-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Se | 50 |
| Cd | 50 | Tl | 100 |
| Pb | 30 | | |

Soil & Water Spike Standards

| Spike Standard* | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 50 | Cu | 250 |
| Al | 2,000 | Fe | 1,000 |
| Ba | 2,000 | Mn | 500 |
| Be | 50 | Ni | 500 |
| Co | 500 | V | 500 |
| Cr | 200 | Zn | 500 |

| Spike Standard* | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-4 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 40 | Sb | 100 |
| Cd | 50 | Se | 10 |
| Pb | 20 | Tl | 50 |

*Instructions included.

Interference Check Standards

| Interference Check Standard A | | | |
|-------------------------------|-------|---|-------|
| CLPP-ICS-A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 5,000 | Fe | 2,000 |
| Ca | 5,000 | Mg | 5,000 |

| Interference Check Standard B4 | | | |
|--------------------------------|-------|--|-------|
| CLPP-ICS-B4 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mn | 50 |
| As | 10 | Ni | 100 |
| Ba | 50 | Pb | 5 |
| Be | 50 | Sb | 60 |
| Cd | 100 | Se | 5 |
| Co | 50 | Tl | 10 |
| Cr | 50 | V | 50 |
| Cu | 50 | Zn | 100 |

See individual products for recommended instrumentation and revision. Custom EPA standards are available upon request.

Calibration Standards

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 250 | Fe | 1,000 |
| Al | 2,000 | K | 5,000 |
| Ba | 2,000 | Mg | 5,000 |
| Be | 50 | Mn | 500 |
| Ca | 5,000 | Na | 5,000 |
| Co | 500 | Ni | 500 |
| Cr | 200 | V | 500 |
| Cu | 250 | Zn | 500 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLP-MS-CAL | | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mg | 20 |
| Al | 20 | Mn | 20 |
| As | 20 | Ni | 20 |
| Ba | 20 | Pb | 20 |
| Be | 20 | Sb | 20 |
| Cd | 20 | Se | 20 |
| Co | 20 | Tl | 20 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 20 |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| Calibration Standard | |
|----------------------|---|
| CGSB1-1 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 1,000 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPP-CAL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 1,000 | Se | 1,000 |
| Cd | 500 | Tl | 1,000 |
| Pb | 1,000 | | |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.



Keith Harden, Packaging Technician, and
Brenda Francis, Lead Product Documentation Technician

CICV Standards – Continuing and Initial Calibration Verification

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 125 | Fe | 500 |
| Al | 1,000 | K | 2,500 |
| Ba | 1,000 | Mg | 2,500 |
| Be | 25 | Mn | 250 |
| Ca | 2,500 | Na | 2,500 |
| Co | 250 | Ni | 250 |
| Cr | 100 | V | 250 |
| Cu | 125 | Zn | 250 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| CICV Standard [†] | |
|----------------------------|--|
| QCP-CICV-2 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 or 1:500 |
| Analyte | µg/mL |
| Sb | 500 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-CICV-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 or 1:500 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 500 | Se | 500 |
| Cd | 250 | Tl | 500 |
| Pb | 500 | | |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| CLP-MS-CICV | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mg | 10 |
| Al | 10 | Mn | 10 |
| As | 10 | Ni | 10 |
| Ba | 10 | Pb | 10 |
| Be | 10 | Sb | 10 |
| Cd | 10 | Se | 10 |
| Co | 10 | Tl | 10 |
| Cr | 10 | V | 10 |
| Cu | 10 | Zn | 10 |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| CICV Standard [†] | | | |
|----------------------------|-------|---|-------|
| QCP-ICV-1REV | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mn | 10 |
| Al | 10 | Ni | 10 |
| As | 10 | Pb | 10 |
| Ba | 10 | Sb | 10 |
| Be | 10 | Se | 10 |
| Cd | 10 | Tl | 10 |
| Co | 10 | V | 10 |
| Cr | 10 | Zn | 10 |
| Cu | 10 | | |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

[†]Manufactured from in-house Second Source concentrates.Zachary Saunders, Product Documentation Technician, and
Linda Reed, Human Resources Manager

Contract Required Detection Limit (CRDL) and Contract Required Quantitation Limit (CRQL) Standards

| CRDL Standard | | | |
|---------------|-------|--|-------|
| CLP-AES-CRDL | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | Li | 5 |
| Al | 20 | Mg | 500 |
| As | 1.5 | Mn | 1.5 |
| Ba | 20 | Na | 500 |
| Be | 0.5 | Ni | 4 |
| Ca | 500 | Pb | 1 |
| Cd | 0.5 | Se | 3.5 |
| Co | 5 | Sr | 5 |
| Cr | 1 | Tl | 2.5 |
| Cu | 2.5 | V | 5 |
| Fe | 10 | Zn | 6 |
| K | 500 | | |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3.

| CRQL Standard | | | |
|---------------|-------|---|-------|
| CLP-AES-CRQL | | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 (water samples) 1:500 (soil samples) | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | K | 500 |
| Al | 20 | Mg | 500 |
| As | 1.5 | Mn | 1.5 |
| Ba | 20 | Na | 500 |
| Be | 0.5 | Ni | 4 |
| Ca | 500 | Pb | 1 |
| Cd | 0.5 | Sb | 6 |
| Co | 5 | Se | 3.5 |
| Cr | 1 | Tl | 2.5 |
| Cu | 2.5 | V | 5 |
| Fe | 10 | Zn | 6 |

For use with ICP-MS. Designed for ILM05.2.

| CRQL Standard | | | |
|----------------|-------|--|-------|
| CLP-AES-CRQL-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 (water samples) 1:500 (soil samples) | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | K | 500 |
| Al | 20 | Mg | 500 |
| As | 1 | Mn | 1.5 |
| Ba | 20 | Na | 500 |
| Be | 0.5 | Ni | 4 |
| Ca | 500 | Pb | 1 |
| Cd | 0.5 | Sb | 6 |
| Co | 5 | Se | 3.5 |
| Cr | 1 | Tl | 2.5 |
| Cu | 2.5 | V | 5 |
| Fe | 10 | Zn | 6 |

For use with ICP-OES. Designed for ILM05.3.

| CRQL Standard | | | |
|---------------|-------|--|-------|
| CLP-MS-CRQL | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | Mn | 0.5 |
| Al | 30 | Ni | 1 |
| As | 1 | Pb | 1 |
| Ba | 10 | Sb | 2 |
| Be | 1 | Se | 5 |
| Cd | 1 | Tl | 1 |
| Co | 0.5 | V | 1 |
| Cr | 2 | Zn | 1 |
| Cu | 2 | | |

For use with ICP-MS. Designed for ILM05.2.

| CRQL Standard | | | |
|---------------|-------|--|-------|
| CLP-MS-CRQL-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | Mn | 1 |
| As | 1 | Ni | 1 |
| Ba | 10 | Pb | 1 |
| Be | 1 | Sb | 2 |
| Cd | 1 | Se | 5 |
| Co | 1 | Tl | 1 |
| Cr | 2 | V | 1 |
| Cu | 2 | Zn | 2 |

For use with ICP-OES. Designed for ILM05.3.

| CRQL Standard | | | |
|---------------|-------|--|-------|
| CLP-MS-CRQL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 1 | Mn | 1 |
| As | 1 | Ni | 1 |
| Ba | 10 | Pb | 1 |
| Be | 1 | Sb | 2 |
| Cd | 1 | Se | 5 |
| Co | 1 | Tl | 1 |
| Cr | 2 | V | 5 |
| Cu | 2 | Zn | 2 |

Interference Check Standards

| Interference Check Standard A | | | |
|-------------------------------|-------|---|-------|
| CLPP-ICS-A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 5,000 | Fe | 2,000 |
| Ca | 5,000 | Mg | 5,000 |

For use with ICP-OES and ICP-MS. Designed for ILM05.2 and ILM05.3.

| Interference Check Standard B | | | |
|-------------------------------|-------|--|-------|
| CLP-MS-ICS-B | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 2 | Mg | 2 |
| Al | 2 | Mn | 2 |
| As | 2 | Ni | 2 |
| Ba | 2 | Pb | 2 |
| Be | 2 | Sb | 2 |
| Cd | 2 | Se | 2 |
| Co | 2 | Tl | 2 |
| Cr | 2 | V | 2 |
| Cu | 2 | Zn | 2 |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| Interference Check Standard B4 | | | |
|--------------------------------|-------|--|-------|
| CLPP-ICS-B4 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mn | 50 |
| As | 10 | Ni | 100 |
| Ba | 50 | Pb | 5 |
| Be | 50 | Sb | 60 |
| Cd | 100 | Se | 5 |
| Co | 50 | Tl | 10 |
| Cr | 50 | V | 50 |
| Cu | 50 | Zn | 100 |

For use with ICP-OES and ICP-MS. Designed for ILM05.2 and ILM05.3.

Soil & Water Spike Standards

| Spike Standard | | | |
|-------------------|-------|--|-------|
| CLP-MS-SPK | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 5 | Mn | 50 |
| Al | 200 | Ni | 50 |
| As | 4 | Pb | 2 |
| Ba | 200 | Sb | 10 |
| Be | 5 | Se | 1 |
| Cd | 5 | Tl | 5 |
| Co | 50 | V | 50 |
| Cr | 20 | Zn | 50 |
| Cu | 25 | | |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3. Instructions included.

| Spike Standard | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 50 | Cu | 250 |
| Al | 2,000 | Fe | 1,000 |
| Ba | 2,000 | Mn | 500 |
| Be | 50 | Ni | 500 |
| Co | 500 | V | 500 |
| Cr | 200 | Zn | 500 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3. Instructions included.

| Spike Standard | | | |
|-------------------|-------|--|-------|
| CLPP-SPK-5 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 40 | Sb | 100 |
| Cd | 50 | Se | 50 |
| Pb | 20 | Tl | 50 |

For use with ICP-OES. Designed for ILM05.2 and ILM05.3. Instructions included.

Internal Standards & Tuning Solutions

| Internal Standard | | | |
|------------------------|-------|--|-------|
| 6020ISS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Rh | 10 |
| Ho | 10 | Sc | 10 |
| In | 10 | Tb | 10 |
| ⁶ Li | 10 | Y | 10 |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| Tuning Solution | | | |
|-----------------|-------|--|-------|
| 6020TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Co | 10 | Li | 10 |
| In | 10 | Tl | 10 |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| Tuning Solution | | | |
|-----------------|-------|---|-------|
| 2008TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Be | 10 | Mg | 10 |
| Co | 10 | Pb | 10 |
| In | 10 | | |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

Blank & Rinse Solutions

Blank & rinse solutions are prepared using double-distilled nitric acid and ASTM Type 1 water. They come packaged in ultra-clean LDPE bottles.

| 1% (v/v) Nitric Acid Calibration Blank | |
|--|--|
| CLP-MS-BLANK | Volume: 125 mL Matrix: HNO ₃ Dilution: Ready to Use |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

| 2% (v/v) Nitric Acid Rinse | |
|----------------------------|--|
| CLP-MS-RINSE | Volume: 125 mL Matrix: HNO ₃ Dilution: Ready to Use |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.



Ragan Phillips, Production Processing Coordinator,
and Justin DiRico, Packaging Technician

Standards for Method 200.7 are designed for use with ICP-OES. Custom EPA standards are available upon request.

200.7 Calibration

Standards are designed for Method 200.7 (1982), Method 3120, Method 6010A Rev. 1, and Method 200.7 CLP-M.

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-1A | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 50 | 328.068 |
| As | 1,000 | 193.759 |
| B | 100 | 249.678 |
| Ba | 100 | 493.409 |
| Ca | 1,000 | 315.887 |
| Cd | 200 | 226.502 |
| Cu | 200 | 324.754 |
| Mn | 200 | 257.610 |
| Se | 500 | 196.090 |
| Sr | 100 | 421.552 |

NOTE: Sr does not exhibit spectral interference problems with any of the EPA Method 200.7 analytes.

| Calibration Standard | | |
|----------------------|-------|---|
| CLPP-SPK-2 | | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Sb | 500 | 206.833 |

| Calibration Standard | | |
|----------------------|-------|---|
| WW-CAL-2 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| K | 2,000 | 766.491 |
| Li | 500 | 670.784 |
| Mo | 1,000 | 203.844 |
| Na | 1,000 | 588.995 |
| Ti | 1,000 | 334.941 |

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ce | 200 | 413.765 |
| Co | 200 | 228.616 |
| P | 1,000 | 214.914 |
| V | 200 | 292.402 |

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-4A | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Al | 1,000 | 308.215 |
| Cr | 500 | 205.552 |
| Hg | 200 | 194.227 |
| Zn | 500 | 213.856 |

| Calibration Standard | | |
|----------------------|-------|---|
| WW-CAL-4B | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| SiO ₂ | 1,000 | 251.611 |
| Sn | 400 | 189.980 |

| Calibration Standard | | |
|----------------------|-------|---|
| WW-CAL-5 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Be | 100 | 313.042 |
| Fe | 1,000 | 259.940 |
| Mg | 1,000 | 279.079 |
| Ni | 200 | 231.604 |
| Pb | 1,000 | 220.353 |
| Tl | 500 | 190.864 |

200.7 Interference Checks

| Interference Check Standard | | | |
|-----------------------------|-------|---|-------|
| 2007ICS-1 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| B | 500 | Si | 230 |
| Mo | 300 | Ti | 1,000 |

| Interference Check Standard | |
|-----------------------------|---|
| CGSB1-1 | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL |
| Sb | 1,000 |

| Interference Check Standard | | | |
|-----------------------------|-------|--|--------|
| 2007ICS-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 300 | K | 20,000 |
| As | 1,000 | Mn | 200 |
| Ba | 300 | Ni | 300 |
| Be | 100 | Pb | 1,000 |
| Cd | 300 | Se | 500 |
| Co | 300 | Tl | 1,000 |
| Cr | 300 | V | 300 |
| Cu | 300 | Zn | 300 |

| Interference Check Standard | | | |
|-----------------------------|--------|---|-------|
| 2007ICS-4 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:50 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 3,000 | Mg | 7,500 |
| Ca | 15,000 | Na | 2,500 |
| Fe | 12,500 | | |

200.7 Quality Controls

| Quality Control Standard [†] | | |
|---------------------------------------|-------|--|
| QCP-QCS-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 25 | 328.068 |
| Al | 100 | 308.215 |
| As | 200 | 193.759 |
| B | 100 | 249.678 |
| Ba | 100 | 493.409 |
| Be | 100 | 313.042 |
| Ca | 100 | 315.887 |
| Cd | 100 | 226.502 |
| Ce | 100 | 413.765 |
| Co | 100 | 228.616 |
| Cr | 100 | 205.552 |
| Cu | 100 | 324.754 |
| Fe | 100 | 259.940 |
| Hg | 200 | 194.227 |
| K | 500 | 766.491 |
| Li | 100 | 670.784 |
| Mg | 100 | 279.079 |
| Mn | 100 | 257.610 |
| Na | 100 | 588.995 |
| Ni | 100 | 231.604 |
| P | 500 | 214.914 |
| Pb | 200 | 220.353 |
| Se | 100 | 196.099 |
| Sr | 100 | 421.552 |
| Tl | 500 | 190.864 |
| V | 100 | 292.402 |
| Zn | 100 | 213.856 |

| Quality Control Standard [†] | | |
|---------------------------------------|-------|---|
| QCP-QCS-2 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Mo | 100 | 203.844 |
| Sb | 200 | 206.833 |
| SiO₂ | 500 | 251.611 |
| Sn | 500 | 189.980 |
| Ti | 100 | 334.941 |

[†]Manufactured from in-house Second Source concentrates.

200.7 Quality Controls

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-7 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | K | 1,000 |
| Al | 100 | Na | 100 |
| B | 100 | Si | 50 |
| Ba | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-19 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Mo | 100 |
| Be | 100 | Ni | 100 |
| Ca | 100 | Pb | 100 |
| Cd | 100 | Sb | 100 |
| Co | 100 | Se | 100 |
| Cr | 100 | Ti | 100 |
| Cu | 100 | Tl | 100 |
| Fe | 100 | V | 100 |
| Mg | 100 | Zn | 100 |
| Mn | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-21 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Mo | 100 |
| Be | 100 | Ni | 100 |
| Ca | 100 | Pb | 100 |
| Cd | 100 | Sb | 100 |
| Co | 100 | Se | 100 |
| Cr | 100 | Sr | 100 |
| Cu | 100 | Ti | 100 |
| Fe | 100 | Tl | 100 |
| Li | 100 | V | 100 |
| Mg | 100 | Zn | 100 |
| Mn | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-26 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mg | 100 |
| Al | 100 | Mn | 100 |
| As | 100 | Mo | 100 |
| B | 100 | Na | 100 |
| Ba | 100 | Ni | 100 |
| Be | 100 | Pb | 100 |
| Ca | 100 | Sb | 100 |
| Cd | 100 | Se | 100 |
| Co | 100 | Si | 50 |
| Cr | 100 | Ti | 100 |
| Cu | 100 | Tl | 100 |
| Fe | 100 | V | 100 |
| K | 1,000 | Zn | 100 |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-28 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mg | 100 |
| Al | 100 | Mn | 100 |
| As | 100 | Mo | 100 |
| B | 100 | Na | 100 |
| Ba | 100 | Ni | 100 |
| Be | 100 | Pb | 100 |
| Ca | 100 | Sb | 100 |
| Cd | 100 | Se | 100 |
| Co | 100 | Si | 50 |
| Cr | 100 | Sr | 100 |
| Cu | 100 | Ti | 100 |
| Fe | 100 | Tl | 100 |
| K | 1,000 | V | 100 |
| Li | 100 | Zn | 100 |

[†]Manufactured from in-house Second Source concentrates.

Rev. 3.3 & 4.4 Calibrations – Standards may be used for either revision.

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-1A | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 50 | 328.068 |
| As | 1,000 | 193.759 |
| B | 100 | 249.678 |
| Ba | 100 | 493.409 |
| Ca | 1,000 | 315.887 |
| Cd | 200 | 226.502 |
| Cu | 200 | 324.754 |
| Mn | 200 | 257.610 |
| Se | 500 | 196.090 |
| Sr | 100 | 421.552 |

NOTE: Sr does not exhibit spectral interference problems with any of the EPA Method 200.7 analytes.

| Calibration Standard | | |
|----------------------|-------|---|
| CLPP-SPK-2 | | Volume: 125 mL Matrix: HNO ₃ /Tartaric Acid Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Sb | 500 | 206.833 |

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| K | 2,000 | 766.491 |
| Li | 500 | 670.784 |
| Mo | 1,000 | 203.844 |
| Na | 1,000 | 588.995 |
| Ti | 1,000 | 334.941 |

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ce | 200 | 413.765 |
| Co | 200 | 228.616 |
| P | 1,000 | 214.914 |
| V | 200 | 292.402 |

| Calibration Standard | | |
|----------------------|-------|--|
| WW-CAL-4A | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Al | 1,000 | 308.215 |
| Cr | 500 | 205.552 |
| Hg | 200 | 194.227 |
| Zn | 500 | 213.856 |

| Calibration Standard | | |
|----------------------|-------|---|
| WW-CAL-4B | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| SiO ₂ | 1,000 | 251.611 |
| Sn | 400 | 189.980 |

| Calibration Standard | | |
|----------------------|-------|---|
| WW-CAL-5 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Be | 100 | 313.042 |
| Fe | 1,000 | 259.940 |
| Mg | 1,000 | 279.079 |
| Ni | 200 | 231.604 |
| Pb | 1,000 | 220.353 |
| Tl | 500 | 190.864 |

Rev. 3.3 & 4.4 Instrument Performance Checks – Standards may be used for either revision.

| Instrument Performance Check | | |
|------------------------------|-------|--|
| WW-IPC-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 25 | 328.068 |
| Al | 200 | 308.215 |
| As | 200 | 193.759 |
| B | 200 | 249.678 |
| Ba | 200 | 493.409 |
| Be | 200 | 313.042 |
| Ca | 200 | 315.887 |
| Cd | 200 | 226.502 |
| Ce | 200 | 413.765 |
| Co | 200 | 228.616 |
| Cr | 200 | 205.552 |
| Cu | 200 | 324.754 |
| Fe | 200 | 259.940 |
| Hg | 200 | 194.227 |
| K | 1,000 | 766.491 |
| Li | 200 | 670.784 |
| Mg | 200 | 279.079 |
| Mn | 200 | 257.610 |
| Na | 200 | 588.995 |
| Ni | 200 | 231.604 |
| P | 1,000 | 214.914 |
| Pb | 200 | 220.353 |
| Se | 200 | 196.090 |
| Sr | 200 | 421.552 |
| Tl | 200 | 190.864 |
| V | 200 | 292.402 |
| Zn | 200 | 213.856 |

| Instrument Performance Check | | |
|------------------------------|-------|--|
| WW-IPC-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 25 | 328.068 |
| Al | 200 | 308.215 |
| As | 200 | 193.759 |
| B | 200 | 249.678 |
| Ba | 200 | 493.409 |
| Be | 200 | 313.042 |
| Ca | 200 | 315.887 |
| Cd | 200 | 226.502 |
| Co | 200 | 228.616 |
| Cr | 200 | 205.552 |
| Cu | 200 | 324.754 |
| Fe | 200 | 259.940 |
| K | 1,000 | 766.491 |
| Li | 200 | 670.784 |
| Mg | 200 | 279.079 |
| Mn | 200 | 257.610 |
| Na | 200 | 588.995 |
| Ni | 200 | 231.604 |
| P | 1,000 | 214.914 |
| Pb | 200 | 220.353 |
| Se | 200 | 196.090 |
| Sr | 200 | 421.552 |
| Tl | 200 | 190.864 |
| V | 200 | 292.402 |
| Zn | 200 | 213.856 |

| Instrument Performance Check | | |
|------------------------------|-------|---|
| WW-IPC-2 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Mo | 200 | 203.844 |
| Sb | 200 | 206.833 |
| SiO ₂ | 1,000 | 251.611 |
| Sn | 200 | 189.980 |
| Ti | 200 | 334.941 |

Rev. 3.3 & 4.4 Laboratory Fortified Stocks –
Standards may be used for either revision.

| Laboratory Fortified Stock Solution | | |
|-------------------------------------|-------|--|
| WW-LFS-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 7.5 | 328.068 |
| Al | 200 | 308.215 |
| As | 80 | 193.759 |
| B | 30 | 249.678 |
| Ba | 20 | 493.409 |
| Be | 20 | 313.042 |
| Ca | 100 | 315.887 |
| Cd | 20 | 226.502 |
| Ce | 200 | 413.765 |
| Co | 20 | 228.616 |
| Cr | 40 | 205.552 |
| Cu | 30 | 324.754 |
| Fe | 300 | 259.940 |
| Hg | 70 | 194.227 |
| K | 1,000 | 766.491 |
| Li | 20 | 670.784 |
| Mg | 200 | 279.079 |
| Mn | 20 | 257.610 |
| Na | 300 | 588.995 |
| Ni | 50 | 231.604 |
| P | 600 | 214.914 |
| Pb | 100 | 220.353 |
| Se | 200 | 196.090 |
| Sr | 20 | 421.552 |
| Tl | 200 | 190.864 |
| V | 30 | 292.402 |
| Zn | 20 | 213.856 |

| Laboratory Fortified Stock Solution | | |
|-------------------------------------|-------|---|
| WW-LFS-2 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Mo | 40 | 203.844 |
| Sb | 80 | 206.833 |
| SiO ₂ | 200 | 251.611 |
| Sn | 70 | 189.980 |
| Ti | 20 | 334.941 |

Rev. 3.3 & 4.4 Quality Controls –
Standards may be used for either revision.

| Quality Control Standard† | | |
|---------------------------|-------|--|
| QCP-QCS-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Ag | 25 | 328.068 |
| Al | 100 | 308.215 |
| As | 200 | 193.759 |
| B | 100 | 249.678 |
| Ba | 100 | 493.409 |
| Be | 100 | 313.042 |
| Ca | 100 | 315.887 |
| Cd | 100 | 226.502 |
| Ce | 100 | 413.765 |
| Co | 100 | 228.616 |
| Cr | 100 | 205.552 |
| Cu | 100 | 324.754 |
| Fe | 100 | 259.940 |
| Hg | 200 | 194.227 |
| K | 500 | 766.491 |
| Li | 100 | 670.784 |
| Mg | 100 | 279.079 |
| Mn | 100 | 257.610 |
| Na | 100 | 588.995 |
| Ni | 100 | 231.604 |
| P | 500 | 214.914 |
| Pb | 200 | 220.353 |
| Se | 100 | 196.099 |
| Sr | 100 | 421.552 |
| Tl | 500 | 190.864 |
| V | 100 | 292.402 |
| Zn | 100 | 213.856 |

| Quality Control Standard† | | |
|---------------------------|-------|---|
| QCP-QCS-2 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 |
| Analyte | µg/mL | λ(nm) |
| Mo | 100 | 203.844 |
| Sb | 200 | 206.833 |
| SiO ₂ | 500 | 251.611 |
| Sn | 500 | 189.980 |
| Ti | 100 | 334.941 |

†Manufactured from in-house Second Source concentrates.

Rev. 3.3 & 4.4 Quality Controls – Standards may be used for either revision.

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-7 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | K | 1,000 |
| Al | 100 | Na | 100 |
| B | 100 | Si | 50 |
| Ba | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-19 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Mo | 100 |
| Be | 100 | Ni | 100 |
| Ca | 100 | Pb | 100 |
| Cd | 100 | Sb | 100 |
| Co | 100 | Se | 100 |
| Cr | 100 | Ti | 100 |
| Cu | 100 | Tl | 100 |
| Fe | 100 | V | 100 |
| Mg | 100 | Zn | 100 |
| Mn | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-21 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 100 | Mo | 100 |
| Be | 100 | Ni | 100 |
| Ca | 100 | Pb | 100 |
| Cd | 100 | Sb | 100 |
| Co | 100 | Se | 100 |
| Cr | 100 | Sr | 100 |
| Cu | 100 | Ti | 100 |
| Fe | 100 | Tl | 100 |
| Li | 100 | V | 100 |
| Mg | 100 | Zn | 100 |
| Mn | 100 | | |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-26 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mg | 100 |
| Al | 100 | Mn | 100 |
| As | 100 | Mo | 100 |
| B | 100 | Na | 100 |
| Ba | 100 | Ni | 100 |
| Be | 100 | Pb | 100 |
| Ca | 100 | Sb | 100 |
| Cd | 100 | Se | 100 |
| Co | 100 | Si | 50 |
| Cr | 100 | Ti | 100 |
| Cu | 100 | Tl | 100 |
| Fe | 100 | V | 100 |
| K | 1,000 | Zn | 100 |

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|---|-------|
| IV-28 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 100 | Mg | 100 |
| Al | 100 | Mn | 100 |
| As | 100 | Mo | 100 |
| B | 100 | Na | 100 |
| Ba | 100 | Ni | 100 |
| Be | 100 | Pb | 100 |
| Ca | 100 | Sb | 100 |
| Cd | 100 | Se | 100 |
| Co | 100 | Si | 50 |
| Cr | 100 | Sr | 100 |
| Cu | 100 | Ti | 100 |
| Fe | 100 | Tl | 100 |
| K | 1,000 | V | 100 |
| Li | 100 | Zn | 100 |

[†]Manufactured from in-house Second Source concentrates.

Method 200.8

Standards for Method 200.8 are designed for use with ICP-MS. Custom EPA standards are available upon request.

Rev. 4.4 & 5.4 Calibration – See individual products for recommended revisions

| Calibration Standard | | | |
|----------------------|-------|---|-------|
| 2008CAL-1 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Mo | 20 | Sb | 20 |

Designed for Rev. 4.4 and 5.4.

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| 2008CAL-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mn | 20 |
| Al | 20 | Ni | 20 |
| As | 20 | Pb | 20 |
| Ba | 20 | Se | 20 |
| Be | 20 | Th | 20 |
| Cd | 20 | Tl | 20 |
| Co | 20 | U | 20 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 20 |

Designed for Rev. 4.4.

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| WW-MSCAL-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mn | 20 |
| Al | 20 | Ni | 20 |
| As | 20 | Pb | 20 |
| Ba | 20 | Se | 100 |
| Be | 20 | Th | 20 |
| Cd | 20 | Tl | 20 |
| Co | 20 | U | 20 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 20 |

Designed for Rev. 5.4.

| Calibration Standard | |
|----------------------|--|
| WW-MSCAL-1 | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 |
| Analyte | µg/mL |
| Hg | 5 |

Designed for Rev. 5.4.

| Mercury Standard | |
|------------------|-------------------------------|
| MSHG-1PPM | Volume: 125 mL Matrix: HCl |
| Analyte | µg/mL |
| Hg | 1 |



Tracy Lancaster, Shipping Technician, and James King, Technical Support Specialist

Rev. 4.4 & 5.4 Internal Standards

| Internal Standard | | | |
|-------------------|-------|---|-------|
| 2008ISS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 20 | Tb | 20 |
| In | 20 | Y | 20 |
| Sc | 20 | | |

Designed for Rev. 4.4 and 5.4. Recommended working level is 200 µg/L for Rev. 4.4; 20-200 µg/L for Rev. 5.4. Use this solution with CGAUN1-1 for Rev. 5.4 if Hg is to be determined by direct analysis.

| Mercury Preservation Solution | |
|-------------------------------|--|
| CGAUN1-1 | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL |
| Au | 1,000 |

Designed for Rev. 5.4. Add an aliquot of this solution to 2008ISS, sufficient to provide a concentration of 100 µg/L in the final dilution of all blanks, calibration standards, and samples.

Rev. 4.4 & 5.4 Quality Controls

| Quality Control Standard [†] | | | |
|---------------------------------------|-------|--|-------|
| QCP-QCS-3 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mn | 10 |
| Al | 10 | Mo | 10 |
| As | 10 | Na | 10 |
| Ba | 10 | Ni | 10 |
| Be | 10 | Pb | 10 |
| Ca | 10 | Sb | 10 |
| Cd | 10 | Se | 50 |
| Co | 10 | Th | 10 |
| Cr | 10 | Tl | 10 |
| Cu | 10 | U | 10 |
| Fe | 10 | V | 10 |
| K | 10 | Zn | 10 |
| Mg | 10 | | |

Designed for Rev. 4.4 and 5.4.

| Quality Control Standard [†] | |
|---------------------------------------|--|
| QCP-QCS-4 | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | µg/mL |
| Hg | 5 |

Designed for Rev. 4.4 and 5.4.

[†]Manufactured from in-house Second Source concentrates.

Rev. 4.4 & 5.4 Tuning

| Tuning Solution | | | |
|-----------------|-------|---|-------|
| 2008TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Be | 10 | Mg | 10 |
| Co | 10 | Pb | 10 |
| In | 10 | | |

Designed for Rev. 4.4 and 5.4.



Jhiam Marasigan, Technical Liaison, and
Madeline Gozzi, Chemist-Technical Support

Standards for Method 6020 are designed for use with ICP-MS. Custom EPA standards are available upon request.

CLP-M Version 8

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| 6020CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | K | 20 |
| Al | 20 | Mg | 20 |
| As | 20 | Mn | 20 |
| Ba | 20 | Na | 20 |
| Be | 20 | Ni | 20 |
| Ca | 20 | Pb | 20 |
| Cd | 20 | Sb | 20 |
| Co | 20 | Se | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 20 | Zn | 20 |

| Interference Check Standard | | | |
|-----------------------------|--------|---|-------|
| 6020ICS-8A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 1,000 | Mg | 1,000 |
| C | 2,000 | Mo | 20 |
| Ca | 3,000 | Na | 2,500 |
| Cl ⁻ | 18,000 | P | 1,000 |
| Fe | 2,500 | S | 1,000 |
| K | 1,000 | Ti | 20 |

| Interference Check Standard | | | |
|-----------------------------|-------|--|-------|
| 6020ICS-8B | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mn | 20 |
| As | 10 | Ni | 20 |
| Cd | 10 | Se | 10 |
| Co | 20 | V | 20 |
| Cr | 20 | Zn | 10 |
| Cu | 20 | | |

| Internal Standard | | | |
|-------------------|-------|--|-------|
| 6020ISS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Rh | 10 |
| Ho | 10 | Sc | 10 |
| In | 10 | Tb | 10 |
| ⁶ Li | 10 | Y | 10 |

| Memory Check Standard | | | |
|-----------------------|-------|---|-------|
| 6020MCC-1 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mg | 1,000 |
| Al | 1,000 | Mn | 20 |
| As | 20 | Mo | 20 |
| Ba | 20 | Na | 1,000 |
| Be | 20 | Ni | 20 |
| C | 2,000 | Pb | 20 |
| Ca | 1,000 | Sb | 20 |
| Cd | 20 | Se | 20 |
| Co | 20 | Ti | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 1,000 | Zn | 20 |
| K | 1,000 | | |

NOTE: For use with 6020MCC-2. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

| Memory Check Standard | | | |
|-----------------------|-------|--|-------|
| 6020MCC-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cl ⁻ | 7,200 | S | 1,000 |
| P | 1,000 | | |

NOTE: For use with 6020MCC-1. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

CLP-M Version 8

| Spike Standard – Soil | | | |
|-----------------------|-------|--|-------|
| 6020SPK-S | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Ni | 25 |
| As | 10 | Pb | 20 |
| Ba | 50 | Sb | 20 |
| Be | 5 | Se | 5 |
| Cd | 10 | Tl | 5 |
| Co | 20 | V | 30 |
| Cr | 50 | Zn | 50 |
| Cu | 50 | | |

| Spike Standard – Water | | | |
|------------------------|-------|--|-------|
| 6020SPK-W | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 5 | Mn | 20 |
| As | 10 | Ni | 20 |
| Ba | 50 | Pb | 10 |
| Be | 5 | Sb | 20 |
| Cd | 5 | Se | 5 |
| Co | 20 | Tl | 5 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 50 |
| Fe | 100 | | |

| Tuning Solution | | | |
|-----------------|-------|--|-------|
| 6020TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Co | 10 | Li | 10 |
| In | 10 | Tl | 10 |

CLP-M Version 9

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| 6020CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | K | 20 |
| Al | 20 | Mg | 20 |
| As | 20 | Mn | 20 |
| Ba | 20 | Na | 20 |
| Be | 20 | Ni | 20 |
| Ca | 20 | Pb | 20 |
| Cd | 20 | Sb | 20 |
| Co | 20 | Se | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 20 | Zn | 20 |

| Interference Check Standard | | | |
|-----------------------------|--------|---|-------|
| 6020ICS-9A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 1,000 | Mg | 1,000 |
| C | 2,000 | Mo | 20 |
| Ca | 3,000 | Na | 2,500 |
| Cl- | 21,215 | P | 1,000 |
| Fe | 2,500 | S | 1,000 |
| K | 1,000 | Ti | 20 |

| Interference Check Standard | | | |
|-----------------------------|-------|--|-------|
| 6020ICS-9B | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 5 | Mn | 20 |
| As | 10 | Ni | 20 |
| Cd | 10 | Se | 10 |
| Co | 20 | V | 20 |
| Cr | 20 | Zn | 10 |
| Cu | 20 | | |

CLP-M Version 9

| Internal Standard | | | |
|------------------------|-------|--|-------|
| 6020ISS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Rh | 10 |
| Ho | 10 | Sc | 10 |
| In | 10 | Tb | 10 |
| ⁶ Li | 10 | Y | 10 |

| Memory Check Standard | | | |
|-----------------------|-------|---|-------|
| 6020MCC-1 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mg | 1,000 |
| Al | 1,000 | Mn | 20 |
| As | 20 | Mo | 20 |
| Ba | 20 | Na | 1,000 |
| Be | 20 | Ni | 20 |
| C | 2,000 | Pb | 20 |
| Ca | 1,000 | Sb | 20 |
| Cd | 20 | Se | 20 |
| Co | 20 | Ti | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 1,000 | Zn | 20 |
| K | 1,000 | | |

NOTE: For use with 6020MCC-2. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

| Memory Check Standard | | | |
|-----------------------|-------|--|-------|
| 6020MCC-2 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cl⁻ | 7,200 | S | 1,000 |
| P | 1,000 | | |

NOTE: For use with 6020MCC-1. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

| Spike Standard – Soil | | | |
|-----------------------|-------|--|-------|
| 6020SPK-S | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Ni | 25 |
| As | 10 | Pb | 20 |
| Ba | 50 | Sb | 20 |
| Be | 5 | Se | 5 |
| Cd | 10 | Tl | 5 |
| Co | 20 | V | 30 |
| Cr | 50 | Zn | 50 |
| Cu | 50 | | |

| Spike Standard – Water | | | |
|------------------------|-------|--|-------|
| 6020SPK-W | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 5 | Mn | 20 |
| As | 10 | Ni | 20 |
| Ba | 50 | Pb | 10 |
| Be | 5 | Sb | 20 |
| Cd | 5 | Se | 5 |
| Co | 20 | Tl | 5 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 50 |
| Fe | 100 | | |

| Tuning Solution | | | |
|-----------------|-------|--|-------|
| 6020TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Co | 10 | Li | 10 |
| In | 10 | Tl | 10 |

REV. 0

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| 6020CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | K | 20 |
| Al | 20 | Mg | 20 |
| As | 20 | Mn | 20 |
| Ba | 20 | Na | 20 |
| Be | 20 | Ni | 20 |
| Ca | 20 | Pb | 20 |
| Cd | 20 | Sb | 20 |
| Co | 20 | Se | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 20 | Zn | 20 |

| CICV Standard† | | | |
|---------------------|-------|---|-------|
| QCP-ICV-1REV | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Mn | 10 |
| Al | 10 | Ni | 10 |
| As | 10 | Pb | 10 |
| Ba | 10 | Sb | 10 |
| Be | 10 | Se | 10 |
| Cd | 10 | Tl | 10 |
| Co | 10 | V | 10 |
| Cr | 10 | Zn | 10 |
| Cu | 10 | | |

| Internal Standard | | | |
|-------------------|-------|--|-------|
| 6020ISS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Bi | 10 | Rh | 10 |
| Ho | 10 | Sc | 10 |
| In | 10 | Tb | 10 |
| ⁶ Li | 10 | Y | 10 |

†Manufactured from in-house Second Source concentrates.

Rebecca Weddle, Lead, Packaging Technician, and
Zachary Cantrell, Student Lab Assistant-Technical Support

| Interference Check Standard | | | |
|-----------------------------|--------|---|-------|
| 6020ICS-0A | | Volume: 500 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Al | 1,000 | Mg | 1,000 |
| C | 2,000 | Mo | 20 |
| Ca | 1,000 | Na | 1,000 |
| Cl- | 10,000 | P | 1,000 |
| Fe | 1,000 | S | 1,000 |
| K | 1,000 | Ti | 20 |

| Interference Check Standard | | | |
|-----------------------------|-------|--|-------|
| 6020ICS-0B | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 2 | Cu | 2 |
| As | 2 | Mn | 2 |
| Cd | 2 | Ni | 2 |
| Co | 2 | Zn | 2 |
| Cr | 2 | | |



Rev. 0

| Memory Check Standard | | | |
|-----------------------|-------|---|-------|
| 6020MCC-1 | | Volume: 125 mL Matrix: HNO ₃ / HF Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 20 | Mg | 1,000 |
| Al | 1,000 | Mn | 20 |
| As | 20 | Mo | 20 |
| Ba | 20 | Na | 1,000 |
| Be | 20 | Ni | 20 |
| C | 2,000 | Pb | 20 |
| Ca | 1,000 | Sb | 20 |
| Cd | 20 | Se | 20 |
| Co | 20 | Ti | 20 |
| Cr | 20 | Tl | 20 |
| Cu | 20 | V | 20 |
| Fe | 1,000 | Zn | 20 |
| K | 1,000 | | |

NOTE: For use with 6020MCC-2. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

| Memory Check Standard | | | |
|-----------------------|-------|--|-------|
| 6020MCC-2 | | Volume: 125 mL Matrix: H ₂ O Dilution 1:2 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cl⁻ | 7,200 | S | 1,000 |
| P | 1,000 | | |

NOTE: For use with 6020MCC-1. When combined, these concentrates will precipitate. The precipitate will not adversely affect the results for this method.

| Spike Standard – Soil | | | |
|-----------------------|-------|--|-------|
| 6020SPK-S | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Ni | 25 |
| As | 10 | Pb | 20 |
| Ba | 50 | Sb | 20 |
| Be | 5 | Se | 5 |
| Cd | 10 | Tl | 5 |
| Co | 20 | V | 30 |
| Cr | 50 | Zn | 50 |
| Cu | 50 | | |

| Spike Standard – Water | | | |
|------------------------|-------|--|-------|
| 6020SPK-W | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 5 | Mn | 20 |
| As | 10 | Ni | 20 |
| Ba | 50 | Pb | 10 |
| Be | 5 | Sb | 20 |
| Cd | 5 | Se | 5 |
| Co | 20 | Tl | 5 |
| Cr | 20 | V | 20 |
| Cu | 20 | Zn | 50 |
| Fe | 100 | | |

| Tuning Solution | | | |
|-----------------|-------|--|-------|
| 6020TS | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Co | 10 | Li | 10 |
| In | 10 | Tl | 10 |

ION CHROMATOGRAPHY



- ✓ Traceable to NIST SRMs and lots
- ✓ Produced under ISO 9001
- ✓ Produced under ISO 17025
- ✓ Produced under ISO Guide 34
- ✓ Assayed by validated Wet Chemical procedures
- ✓ Assayed by validated IC procedures

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Lee Hawthorne,
Manufacturing Technician,
and Jeanette Preston,
Packaging Technician

1,000 µg/mL Anions

Custom anion standards are available upon request.

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---|-------------------------------|--|--------|------------|
| Acetate, C ₂ H ₃ O ₂ ⁻ | H ₂ O | Sodium acetate | 125 mL | ICOAC1-1 |
| | | | 500 mL | ICOAC1-5 |
| Adipate, C ₆ H ₈ O ₄ ⁻² | H ₂ O | Adipic acid | 125 mL | ICADP1-1 |
| | | | 500 mL | ICADP1-5 |
| Benzoate, C ₆ H ₅ CO ₂ ⁻ | H ₂ O | Benzoic acid | 125 mL | ICBEN1-1 |
| | | | 500 mL | ICBEN1-5 |
| Bromate, BrO ₃ ⁻ | H ₂ O | KBrO ₃ | 125 mL | ICBR031-1 |
| | | | 500 mL | ICBR031-5 |
| Bromide, Br ⁻ | H ₂ O | KBr | 125 mL | ICBR1-1 |
| | | | 500 mL | ICBR1-5 |
| Butyrate, C ₄ H ₇ O ₂ ⁻ | H ₂ O | Butyric acid | 125 mL | ICBTR1-1 |
| | | | 500 mL | ICBTR1-5 |
| Carbonate, CO ₃ ⁻² | H ₂ O | Na ₂ CO ₃ | 125 mL | ICCO31-1 |
| | | | 500 mL | ICCO31-5 |
| Chlorate, ClO ₃ ⁻ | H ₂ O | KClO ₃ | 125 mL | ICCLO31-1 |
| | | | 500 mL | ICCLO31-5 |
| Chloride, Cl ⁻ | H ₂ O | KCl | 125 mL | ICCL1-1 |
| | | | 500 mL | ICCL1-5 |
| Chlorite, ClO ₂ ⁻ | H ₂ O | NaClO ₂ | 125 mL | ICCLO21-1 |
| | | | 500 mL | ICCLO21-5 |
| Chromate, CrO ₄ ⁻² | H ₂ O | (NH ₄) ₂ Cr ₂ O ₇ | 125 mL | ICCRO41-1 |
| | | | 500 mL | ICCRO41-5 |
| Citrate, C ₆ H ₅ O ₇ ⁻³ | H ₂ O | Citric acid | 125 mL | ICCIT1-1 |
| | | | 500 mL | ICCIT1-5 |
| Cyanide, NaCN | H ₂ O | Sodium cyanide | 20 mL | CN-1000-25 |
| Fluoride, F ⁻ | H ₂ O | NaF | 125 mL | ICF1-1 |
| | | | 500 mL | ICF1-5 |
| Formate, HCO ₂ ⁻ | H ₂ O | Sodium formate | 125 mL | ICHCO1-1 |
| | | | 500 mL | ICHCO1-5 |
| Glutarate, C ₅ H ₆ O ₄ ⁻² | H ₂ O | Glutaric acid | 125 mL | ICGTR1-1 |
| | | | 500 mL | ICGTR1-5 |
| Glycolate, C ₂ H ₃ O ₃ ⁻ | H ₂ O | Glycolic acid | 125 mL | ICGLY1-1 |
| | | | 500 mL | ICGLY1-5 |
| Iodide, I ⁻ | H ₂ O / stabilizer | NH ₄ I | 125 mL | ICI1-1 |
| | | | 500 mL | ICI1-5 |
| Lactate, C ₃ H ₅ O ₃ ⁻ | H ₂ O | Lactic acid | 125 mL | ICLCT1-1 |
| | | | 500 mL | ICLCT1-5 |
| Malate, C ₄ H ₄ O ₅ ⁻² | H ₂ O | Malic acid | 125 mL | ICMLA1-1 |
| | | | 500 mL | ICMLA1-5 |
| Maleate, C ₄ H ₂ O ₄ ⁻² | H ₂ O | Maleic acid | 125 mL | ICMLE1-1 |
| | | | 500 mL | ICMLE1-5 |
| Malonate, C ₃ H ₂ O ₄ ⁻² | H ₂ O | Malonic acid | 125 mL | ICMLO1-1 |
| | | | 500 mL | ICMLO1-5 |
| Methanesulfonate, CH ₃ SO ₃ ⁻ | H ₂ O | Methanesulfonic acid | 125 mL | ICMSA1-1 |
| | | | 500 mL | ICMSA1-5 |
| Nitrate, NO ₃ ⁻ | H ₂ O | NaNO ₃ | 125 mL | ICNO31-1 |
| | | | 500 mL | ICNO31-5 |

ION CHROMATOGRAPHY ANION STANDARDS

1,000 µg/mL Anions

Custom anion standards are available upon request.

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|------------------|--|------------------|------------------------|
| Nitrate as Nitrogen | H ₂ O | NaNO ₃ | 125 mL 500 mL | ICNNO31-1 ICNNO31-5 |
| Nitrilotriacetate, NC ₆ H ₆ O ₆ ⁻³ | H ₂ O | Nitrilotriacetic acid | 125 mL 500 mL | ICNTA1-1 ICNTA1-5 |
| Nitrite, NO ₂ ⁻ | H ₂ O | NaNO ₂ | 125 mL 500 mL | ICNO21-1 ICNO21-5 |
| Nitrite as Nitrogen | H ₂ O | NaNO ₂ | 125 mL 500 mL | ICNNO21-1 ICNNO21-5 |
| Oxalate, C ₂ O ₄ ⁻² | H ₂ O | Sodium oxalate | 125 mL 500 mL | ICOXA1-1 ICOXA1-5 |
| Perchlorate, ClO ₄ ⁻ | H ₂ O | KClO ₄ | 125 mL 500 mL | ICCLO41-1 ICCLO41-5 |
| Phosphate, PO ₄ ⁻³ | H ₂ O | NH ₄ H ₂ PO ₄ | 125 mL 500 mL | ICPO41-1 ICPO41-5 |
| Phosphate as Phosphorus | H ₂ O | NH ₄ H ₂ PO ₄ | 125 mL 500 mL | ICPPO41-1 ICPPO41-5 |
| Phthalate, C ₆ H ₄ (CO ₂) ₂ ⁻² | H ₂ O | Potassium hydrogen phthalate | 125 mL 500 mL | ICKHP1-1 ICKHP1-5 |
| Propionate, C ₂ H ₅ CO ₂ ⁻ | H ₂ O | Sodium propionate | 125 mL 500 mL | ICOPR1-1 ICOPR1-5 |
| Succinate, C ₄ H ₄ O ₄ ⁻² | H ₂ O | Succinic acid | 125 mL 500 mL | ICSCC1-1 ICSCC1-5 |
| Sulfate, SO ₄ ⁻² | H ₂ O | K ₂ SO ₄ | 125 mL 500 mL | ICSO41-1 ICSO41-5 |
| Tartrate, C ₄ H ₄ O ₆ ⁻² | H ₂ O | Tartaric acid | 125 mL 500 mL | ICTRTR1-1 ICTRTR1-5 |
| Thiocyanate, SCN ⁻ | H ₂ O | KSCN | 125 mL 500 mL | ICSCN1-1 ICSCN1-5 |
| Thiosulfate, S ₂ O ₃ ⁻² | H ₂ O | Sodium thiosulfate | 125 mL 500 mL | ICS2031-1 ICS2031-5 |

10,000 µg/mL Anions

Custom anion standards are available upon request.

10,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|------------------|--------------------------------|------------------|------------------------|
| Chloride, Cl ⁻ | H ₂ O | KCl | 125 mL 500 mL | ICCL10-1 ICCL10-5 |
| Sulfate, SO ₄ ⁻² | H ₂ O | K ₂ SO ₄ | 125 mL 500 mL | ICSO410-1 ICSO410-5 |

1,000 µg/mL Cations

Custom cation standards are available upon request.


1,000 µg/mL



| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|--|----------------------|----------------------------------|------------------|------------------------|
| 3-Methoxypropylamine $\text{CH}_3\text{O}(\text{CH}_2)_3\text{NH}_2$ | HCl | 3-Methoxypropylamine | 125 mL 500 mL | ICMPA1-1 ICMPA1-5 |
| Ammonium, NH_4^+ | H_2O | NH_4Cl | 125 mL 500 mL | ICNH41-1 ICNH41-5 |
| Ammonium as Nitrogen | H_2O | NH_4Cl | 125 mL 500 mL | ICNNH41-1 ICNNH41-5 |
| Barium, Ba^{+2} | HNO_3 | $\text{Ba}(\text{NO}_3)_2$ | 125 mL 500 mL | ICBA1-1 ICBA1-5 |
| Calcium, Ca^{+2} | HNO_3 | CaO | 125 mL 500 mL | ICCA1-1 ICCA1-5 |
| Cesium, Cs^+ | HNO_3 | CsNO_3 | 125 mL 500 mL | ICCS1-1 ICCS1-5 |
| Diethanolamine, $(\text{HOCH}_2\text{CH}_2)_2\text{NH}$ | H_2O | Diethanolamine | 125 mL 500 mL | ICDEA1-1 ICDEA1-5 |
| Dimethylamine, $\text{NH}(\text{CH}_3)_2$ | HCl | Dimethylamine | 125 mL 500 mL | ICDMA1-1 ICDMA1-5 |
| Lithium, Li^+ | HNO_3 | Li_2CO_3 | 125 mL 500 mL | ICLI1-1 ICLI1-5 |
| Magnesium, Mg^{+2} | HNO_3 | Mg metal | 125 mL 500 mL | ICMG1-1 ICMG1-5 |
| Monoethanolamine, $\text{HOCH}_2\text{CH}_2\text{NH}_2$ | H_2O | Monoethanolamine | 125 mL 500 mL | ICMEA1-1 ICMEA1-5 |
| Monomethylamine, NH_2CH_3 | HCl | Monomethylamine | 125 mL 500 mL | ICMMA1-1 ICMMA1-5 |
| Potassium, K^+ | HNO_3 | KNO_3 | 125 mL 500 mL | ICK1-1 ICK1-5 |
| Rubidium, Rb^+ | HNO_3 | RbNO_3 | 125 mL 500 mL | ICRB1-1 ICRB1-5 |
| Sodium, Na^+ | HNO_3 | Na_2CO_3 | 125 mL 500 mL | ICNA1-1 ICNA1-5 |
| Strontium, Sr^{+2} | HNO_3 | SrCO_3 | 125 mL 500 mL | ICSR1-1 ICSR1-5 |
| Tetramethylammonium, $\text{N}^+(\text{CH}_3)_4$ | H_2O | Tetramethylammonium hydroxide | 125 mL 500 mL | ICTMAH1-1 ICTMAH1-5 |
| Triethanolamine, $(\text{HOCH}_2\text{CH}_2)_3\text{N}$ | H_2O | Triethanolamine | 125 mL 500 mL | ICTEA1-1 ICTEA1-5 |
| Triethylamine, $(\text{CH}_3\text{CH}_2)_3\text{N}$ | HCl | Triethylamine | 125 mL 500 mL | ICTA1-1 ICTA1-5 |
| Trimethylamine, $(\text{CH}_3)_3\text{N}$ | HCl | Trimethylamine | 125 mL 500 mL | ICTMA1-1 ICTMA1-5 |


ION CHROMATOGRAPHY MULTI-ION STANDARDS

Multi-Ion Standards


Custom multi-ion standards are available upon request.

| Anion Calibration Standard | | | |
|--|-------|--|-------|
| IC-FAS-1A  | | Volume: 125 mL Matrix: H ₂ O | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br ⁻ | 100 | NO ₂ ⁻ | 100 |
| Cl ⁻ | 30 | PO ₄ ⁻³ | 150 |
| F ⁻ | 20 | SO ₄ ⁻² | 150 |
| NO ₃ ⁻ | 100 | | |

|  Anion Calibration Standard | | | |
|--|-------|--|-------|
| IV-STOCK-59  | | Volume: 125 mL Matrix: H ₂ O | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br ⁻ | 1000 | NO ₂ ⁻ | 1000 |
| Cl ⁻ | 1000 | PO ₄ ⁻³ | 1000 |
| F ⁻ | 1000 | SO ₄ ⁻² | 1000 |
| NO ₃ ⁻ | 1000 | | |

| Cation Calibration Standard | | | |
|--|-------|--|-------|
| IC-SCS1-1  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ca ⁺² | 1,000 | Mg ⁺² | 200 |
| K ⁺ | 200 | Na ⁺ | 200 |
| Li ⁺ | 50 | NH ₄ ⁺ | 400 |

Used for daily calibration.

| Cation Calibration Standard | | | |
|---|-------|--|-------|
| IV-STOCK-7  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ba ⁺² | 100 | Mn ⁺² | 100 |
| Ca ⁺² | 100 | Na ⁺ | 100 |
| K ⁺ | 100 | NH ₄ ⁺ | 100 |
| Li ⁺ | 100 | Sr ⁺² | 100 |
| Mg ⁺² | 100 | | |

Used for daily calibration.

ELUENT CONCENTRATES

Custom eluent concentrates are available upon request.

| 0.18 M Sodium Carbonate/0.17 M Sodium Bicarbonate | | |
|--|---------------|---|
| ELUENT1817-1 | 100 mL | Matrix: H ₂ O Dilution: 1:100 |
| ELUENT1817-5 | 500 mL | |
| For preparation of 1.8 mM CO ₃ ⁻² / 1.7 mM HCO ₃ ⁻ eluent. | | |

| 0.5 M Sodium Bicarbonate | | |
|---|---------------|---|
| BICARB-1 | 100 mL | Matrix: H ₂ O Dilution: 1:100 |
| BICARB-5 | 500 mL | |
| For preparation of various CO ₃ ⁻² / HCO ₃ ⁻ eluents. | | |

| 0.35 M Sodium Carbonate/0.10 M Sodium Bicarbonate | | |
|--|---------------|---|
| ELUENT3510-1 | 100 mL | Matrix: H ₂ O Dilution: 1:100 |
| ELUENT3510-5 | 500 mL | |
| For preparation of 3.5 mM CO ₃ ⁻² / 1.0 mM HCO ₃ ⁻ eluent. | | |

| 0.5 M Sodium Carbonate | | |
|---|---------------|---|
| CARB-1 | 100 mL | Matrix: H ₂ O Dilution: 1:100 |
| CARB-5 | 500 mL | |
| For preparation of various CO ₃ ⁻² / HCO ₃ ⁻ eluents. | | |

| 1.8 M Methanesulfonic Acid | | |
|--|---------------|---|
| MSAELUENT-1 | 100 mL | Matrix: H ₂ O Dilution: 1:100 |
| MSAELUENT-5 | 500 mL | |
| For preparation of 18 mM CH ₃ SO ₃ H eluent for analyzing cations. | | |

 Common Multi-Ion Standards

300.0 Rev. 2.1 Part A / 300.1 Part A Custom EPA standards are available upon request.

| 0.18 M Sodium Carbonate/0.17 M Sodium Bicarbonate | | |
|---|--------|--------------------------|
| ELUENT1817-1 | 100 mL | Matrix: H ₂ O |
| ELUENT1817-5 | 500 mL | Dilution 1:100 |

For preparation of 1.8 mM CO₃²⁻ / 1.7 mM HCO₃⁻ eluent.

| Calibration Standard | | | |
|-------------------------------|-------|--|-------|
| 300-CAL-A | | Volume: 125 mL Matrix: H ₂ O Dilution 1:10 to 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br ⁻ | 100 | Nitrite as Nitrogen | 30 |
| Cl ⁻ | 30 | Nitrate as Nitrogen | 25 |
| F ⁻ | 20 | Phosphate as Phosphorus | 50 |
| SO ₄ ⁻² | 150 | | |

| Dichloroacetate Standard | | |
|---|--------|--------------------------|
| ICDCA-S-1 | 125 mL | Matrix: H ₂ O |
| ICDCA-S-5 | 500 mL | |
| Analyte | µg/mL | |
| Cl ₂ HC ₂ O ₂ ⁻ | 500 | |

For use as a surrogate analyte.

| Laboratory Fortification Stock Standard | | | |
|---|-------|---|-------|
| 300-LFS-A | | Volume: 125 mL Matrix: H ₂ O Dilution 1:100 to 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br ⁻ | 1,000 | Nitrite as Nitrogen | 300 |
| Cl ⁻ | 300 | Nitrate as Nitrogen | 300 |
| F ⁻ | 200 | Phosphate as Phosphorus | 500 |
| SO ₄ ⁻² | 1,500 | | |

This standard is used to prepare the Laboratory Fortified Blank and the Laboratory Fortified Sample Matrix

| QC Standard/Instrument Performance Check [†] | | | |
|---|-------|--|-------|
| QCP-QCS-5 | | Volume: 125 mL Matrix: H ₂ O Dilution 1:10 to 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Br ⁻ | 50 | Nitrite as Nitrogen | 15 |
| Cl ⁻ | 15 | Nitrate as Nitrogen | 10 |
| F ⁻ | 10 | Phosphate as Phosphorus | 25 |
| SO ₄ ⁻² | 75 | | |

Can be used to prepare the QC Sample or the IPC Solution.
†Manufactured from in-house Second Source concentrates.

Allyson Guilliams,
Quality Control Supervisor,
and Theron Lester,
Shipping Technician



ION CHROMATOGRAPHY EPA STANDARDS

Method 300.0 & 300.1

300.1 Part B Custom EPA standards are available upon request.

| Bromate | |
|-------------------------------|--|
| ICBR031-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| BrO ₃ ⁻ | 1,000 |

| Bromide | |
|-----------------|--|
| ICBR1-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| Br ⁻ | 1,000 |

| Chlorate | |
|-------------------------------|--|
| ICCL031-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| ClO ₃ ⁻ | 1,000 |

| Chlorite | |
|-------------------------------|--|
| ICCL021-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| ClO ₂ ⁻ | 1,000 |

NOTE: Contains less than 10ppm ClO₃⁻.

| Dichloracetate Standard | | |
|---|--------------|--------------------------|
| ICDCA-S-1 | 125 mL | Matrix: H ₂ O |
| ICDCA-S-5 | 500 mL | |
| Analyte | µg/mL | |
| Cl ₂ HC ₂ O ₂ ⁻ | 500 | |

For use as a surrogate analyte.

Method 314.0

Custom EPA standards are available upon request.

| 1,400 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|--|
| CON1400-25 | Volume: 125 mL Matrix: H ₂ O |

| Perchlorate | |
|-------------------------------|--|
| ICCL041-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| ClO ₄ ⁻ | 1,000 |

| Mixed Anion Stock Solution | |
|-------------------------------|--|
| 314-ANION-STOCK | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| Cl ⁻ | 25,000 |
| CO ₃ ⁻² | 25,000 |
| SO ₄ ⁻² | 25,000 |

NOTE: This is not a CRM. This is the anion stock solution used to determine the MCT (Matrix Conductivity Threshold) for Method 314.0.

Joel Cadwell, Accounting Manager, and
Kathy Stoner, International Accounting Specialist





If Atomic Absorption (AA) is your technique of choice, we think you'll appreciate our full line of AA standards.

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- ✓ Traceable to NIST SRMs
- ✓ Produced under ISO 9001
- ✓ Assayed by validated procedures

Noelle Newman, CSR–International, and Jeffrey Itle, International Business Manager



1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|----------------|----------------------------------|---|--------|-----------|
| Aluminum, Al | HNO ₃ | Al metal | 125 mL | AAAL1-1 |
| | | | 500 mL | AAAL1-5 |
| Antimony, Sb | HNO ₃ / Tartaric Acid | Sb metal | 125 mL | AASB1-1 |
| | | | 500 mL | AASB1-5 |
| Arsenic, As | HNO ₃ | As metal | 125 mL | AAAS1-1 |
| | | | 500 mL | AAAS1-5 |
| Barium, Ba | HNO ₃ | Ba(NO ₃) ₂ | 125 mL | AABA1-1 |
| | | | 500 mL | AABA1-5 |
| Beryllium, Be | HNO ₃ | Be ₄ O(C ₂ H ₃ O ₂) ₆ | 125 mL | AABE1-1 |
| | | | 500 mL | AABE1-5 |
| Bismuth, Bi | HNO ₃ | Bi metal | 125 mL | AABI1-1 |
| | | | 500 mL | AABI1-5 |
| Boron, B | H ₂ O | H ₃ BO ₃ | 125 mL | AAB1-1 |
| | | | 500 mL | AAB1-5 |
| Cadmium, Cd | HNO ₃ | Cd metal | 125 mL | AACD1-1 |
| | | | 500 mL | AACD1-5 |
| Calcium, Ca | HNO ₃ | CaO | 125 mL | AACA1-1 |
| | | | 500 mL | AACA1-5 |
| Cerium, Ce | HNO ₃ | CeO ₂ | 125 mL | AACE1-1 |
| | | | 500 mL | AACE1-5 |
| Cesium, Cs | HNO ₃ | CsNO ₃ | 125 mL | AACS1-1 |
| | | | 500 mL | AACS1-5 |
| Chromium, Cr | HNO ₃ | Cr metal | 125 mL | AACR1-1 |
| | | | 500 mL | AACR1-5 |
| Cobalt, Co | HNO ₃ | Co metal | 125 mL | AAC01-1 |
| | | | 500 mL | AAC01-5 |
| Copper, Cu | HNO ₃ | Cu metal | 125 mL | AACU1-1 |
| | | | 500 mL | AACU1-5 |
| Dysprosium, Dy | HNO ₃ | Dy ₂ O ₃ | 125 mL | AADY1-1 |
| | | | 500 mL | AADY1-5 |
| Erbium, Er | HNO ₃ | Er ₂ O ₃ | 125 mL | AAER1-1 |
| | | | 500 mL | AAER1-5 |
| Europium, Eu | HNO ₃ | Eu ₂ O ₃ | 125 mL | AAEU1-1 |
| | | | 500 mL | AAEU1-5 |
| Gadolinium, Gd | HNO ₃ | Gd ₂ O ₃ | 125 mL | AAGD1-1 |
| | | | 500 mL | AAGD1-5 |
| Gallium, Ga | HNO ₃ | Ga metal | 125 mL | AAGA1-1 |
| | | | 500 mL | AAGA1-5 |
| Germanium, Ge | HNO ₃ / HF | Ge metal | 125 mL | AAGE1-1 |
| | | | 500 mL | AAGE1-5 |
| Gold, Au | HCl | HAuCl ₄ •xH ₂ O | 125 mL | AAAU1-1 |
| | | | 500 mL | AAAU1-5 |
| Hafnium, Hf | HNO ₃ / HF | HfO ₂ | 125 mL | AAHF1-1 |
| | | | 500 mL | AAHF1-5 |
| Holmium, Ho | HNO ₃ | Ho ₂ O ₃ | 125 mL | AAH01-1 |
| | | | 500 mL | AAH01-5 |
| Indium, In | HNO ₃ | In metal | 125 mL | AAIN1-1 |
| | | | 500 mL | AAIN1-5 |

1,000 µg/mL Standards

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|------------------|-----------------------|--|--------|-----------|
| Iridium, Ir | HCl | IrCl ₃ | 125 mL | AAIR1-1 |
| | | | 500 mL | AAIR1-5 |
| Iron, Fe | HNO ₃ | Fe metal | 125 mL | AAFE1-1 |
| | | | 500 mL | AAFE1-5 |
| Lanthanum, La | HNO ₃ | La ₂ O ₃ | 125 mL | AALA1-1 |
| | | | 500 mL | AALA1-5 |
| Lead, Pb | HNO ₃ | Pb(NO ₃) ₂ | 125 mL | AAPB1-1 |
| | | | 500 mL | AAPB1-5 |
| Lithium, Li | HNO ₃ | Li ₂ CO ₃ | 125 mL | AALI1-1 |
| | | | 500 mL | AALI1-5 |
| Lutetium, Lu | HNO ₃ | Lu ₂ O ₃ | 125 mL | AALU1-1 |
| | | | 500 mL | AALU1-5 |
| Magnesium, Mg | HNO ₃ | Mg metal | 125 mL | AAMG1-1 |
| | | | 500 mL | AAMG1-5 |
| Manganese, Mn | HNO ₃ | Mn metal | 125 mL | AAMN1-1 |
| | | | 500 mL | AAMN1-5 |
| Mercury, Hg | HNO ₃ | Hg metal | 125 mL | AAHG1-1 |
| | | | 500 mL | AAHG1-5 |
| Molybdenum, Mo | NH ₄ OH | (NH ₄) ₂ MoO ₄ | 125 mL | AAM01-1 |
| | | | 500 mL | AAM01-5 |
| Neodymium, Nd | HNO ₃ | Nd ₂ O ₃ | 125 mL | AAND1-1 |
| | | | 500 mL | AAND1-5 |
| Nickel, Ni | HNO ₃ | Ni metal | 125 mL | AANI1-1 |
| | | | 500 mL | AANI1-5 |
| Niobium, Nb | HNO ₃ / HF | Nb ₂ O ₅ | 125 mL | AANB1-1 |
| | | | 500 mL | AANB1-5 |
| Palladium, Pd | HCl | Pd(NO ₃) ₂ | 125 mL | AAPD1-1 |
| | | | 500 mL | AAPD1-5 |
| Phosphorus, P | H ₂ O | H ₃ PO ₄ | 125 mL | AAP1-1 |
| | | | 500 mL | AAP1-5 |
| Platinum, Pt | HCl | PtCl ₄ | 125 mL | AAPT1-1 |
| | | | 500 mL | AAPT1-5 |
| Potassium, K | HNO ₃ | KNO ₃ | 125 mL | AAK1-1 |
| | | | 500 mL | AAK1-5 |
| Praseodymium, Pr | HNO ₃ | Pr ₆ O ₁₁ | 125 mL | AAPR1-1 |
| | | | 500 mL | AAPR1-5 |
| Rhenium, Re | HNO ₃ | Re metal | 125 mL | AARE1-1 |
| | | | 500 mL | AARE1-5 |
| Rhodium, Rh | HCl | RhCl ₃ | 125 mL | AARH1-1 |
| | | | 500 mL | AARH1-5 |
| Rubidium, Rb | HNO ₃ | RbNO ₃ | 125 mL | AARB1-1 |
| | | | 500 mL | AARB1-5 |
| Ruthenium, Ru | HCl | NH ₄ RuCl ₆ | 125 mL | AARU1-1 |
| | | | 500 mL | AARU1-5 |
| Samarium, Sm | HNO ₃ | Sm ₂ O ₃ | 125 mL | AASM1-1 |
| | | | 500 mL | AASM1-5 |
| Scandium, Sc | HNO ₃ | Sc ₂ O ₃ | 125 mL | AASC1-1 |
| | | | 500 mL | AASC1-5 |

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|---------------|-----------------------|--|--------|-----------|
| Selenium, Se | HNO ₃ | Se metal | 125 mL | AASE1-1 |
| | | | 500 mL | AASE1-5 |
| Silicon, Si | HNO ₃ / HF | SiO ₂ | 125 mL | AAS11-1 |
| | | | 500 mL | AAS11-5 |
| Silver, Ag | HNO ₃ | Ag metal | 125 mL | AAAG1-1 |
| | | | 500 mL | AAAG1-5 |
| Sodium, Na | HNO ₃ | Na ₂ CO ₃ | 125 mL | AANA1-1 |
| | | | 500 mL | AANA1-5 |
| Strontium, Sr | HNO ₃ | SrCO ₃ | 125 mL | AASR1-1 |
| | | | 500 mL | AASR1-5 |
| Sulfur, S | H ₂ O | H ₂ SO ₄ | 125 mL | AAS1-1 |
| | | | 500 mL | AAS1-5 |
| Tantalum, Ta | HNO ₃ / HF | Ta metal | 125 mL | AATA1-1 |
| | | | 500 mL | AATA1-5 |
| Tellurium, Te | HCl | Te metal | 125 mL | AATE1-1 |
| | | | 500 mL | AATE1-5 |
| Terbium, Tb | HNO ₃ | Tb ₄ O ₇ | 125 mL | AATB1-1 |
| | | | 500 mL | AATB1-5 |
| Thallium, Tl | HNO ₃ | TlNO ₃ | 125 mL | AATL1-1 |
| | | | 500 mL | AATL1-5 |
| Thorium, Th | HNO ₃ | Th(NO ₃) ₄ •4H ₂ O | 125 mL | AATH1-1 |
| | | | 500 mL | AATH1-5 |
| Thulium, Tm | HNO ₃ | Tm ₂ O ₃ | 125 mL | AATM1-1 |
| | | | 500 mL | AATM1-5 |
| Tin, Sn | HNO ₃ / HF | Sn metal | 125 mL | AASN1-1 |
| | | | 500 mL | AASN1-5 |
| Titanium, Ti | HNO ₃ / HF | Ti metal | 125 mL | AATI1-1 |
| | | | 500 mL | AATI1-5 |
| Tungsten, W | HNO ₃ / HF | W metal | 125 mL | AAW1-1 |
| | | | 500 mL | AAW1-5 |
| Uranium, U | HNO ₃ | UO ₂ (NO ₃) ₂ | 125 mL | AAU1-1 |
| | | | 500 mL | AAU1-5 |
| Vanadium, V | HNO ₃ | V ₂ O ₅ | 125 mL | AAV1-1 |
| | | | 500 mL | AAV1-5 |
| Ytterbium, Yb | HNO ₃ | Yb ₂ O ₃ | 125 mL | AAYB1-1 |
| | | | 500 mL | AAYB1-5 |
| Yttrium, Y | HNO ₃ | Y ₂ O ₃ | 125 mL | AAAY1-1 |
| | | | 500 mL | AAAY1-5 |
| Zinc, Zn | HNO ₃ | Zn metal | 125 mL | AAZN1-1 |
| | | | 500 mL | AAZN1-5 |
| Zirconium, Zr | HF | ZrO ₂ | 125 mL | AAZR1-1 |
| | | | 500 mL | AAZR1-5 |

Custom modifiers, buffers and releasing agents are available upon request.

| 0.3% Palladium/0.2% Magnesium Modifier | | | |
|--|-------|--|-------|
| MM-PDMG-32 | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Mg(NO ₃) ₂ | 2,000 | Pd | 3,000 |

| 1% Palladium Modifier | |
|-----------------------|--|
| MM-PD-10 | Volume: 125 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Pd | 10,000 |

| 0.5% Palladium Modifier | |
|-------------------------|--|
| MM-PD-5 | Volume: 125 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Pd | 5,000 |

| 2% Lithium Ionization Buffer | |
|------------------------------|--|
| LINB2-5 | Volume: 500 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Li | 20,000 |


| 1% Lanthanum Releasing Agent | |
|------------------------------|-------------------------------|
| LACB1-5 | Volume: 500 mL Matrix: HCl |
| Analyte | µg/mL |
| La | 10,000 |


| 4% Phosphate Modifier | |
|-----------------------|--|
| MM-P-40 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| PO ₄ | 40,000 |

| 1% Magnesium Nitrate Modifier | |
|-----------------------------------|--|
| MM-MG-10 | Volume: 125 mL Matrix: HNO ₃ |
| Analyte | µg/mL |
| Mg(NO ₃) ₂ | 10,000 |

MULTI-ELEMENT STANDARDS

Custom modifiers, buffers and releasing agents are available upon request.

| GFAA Calibration Standard | | | |
|--|-------|--|-------|
| IV-STOCK-18  | | Volume: 125 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 10 | Cu | 50 |
| Al | 100 | Fe | 20 |
| As | 100 | Mn | 20 |
| Ba | 50 | Ni | 50 |
| Be | 5 | Pb | 100 |
| Cd | 5 | Sb | 100 |
| Co | 50 | Se | 100 |
| Cr | 20 | Tl | 100 |

| AA Calibration Standard | | | |
|--|-------|--|-------|
| IV-STOCK-25  | | Volume: 500 mL Matrix: HNO ₃ | |
| Analyte | µg/mL | Analyte | µg/mL |
| Cr | 3 | Ni | 10 |

 Common Multi-Element Standards

 Merck

TCLP

Custom EPA standards are available upon request.

Toxicity Characteristic Leachate Procedure (TCLP)

| TCLP Hg Standard | |
|-------------------|---|
| TCLP-AA-HG | Volume: 125 mL Matrix: HNO ₃ Dilution: As required |
| Analyte | µg/mL |
| Hg | 20 |

| TCLP Standard | | | |
|------------------|-------|--|-------|
| TCLP-1REV | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:5 | |
| Analyte | µg/mL | Analyte | µg/mL |
| Ag | 25 | Cr | 25 |
| As | 25 | Pb | 25 |
| Ba | 500 | Se | 5 |
| Cd | 5 | | |

CLP Graphite Furnace Standards

Custom EPA standards are available upon request.

| Analytical Spiking Standard | | | |
|-----------------------------|-------|---|-------|
| CLPF-ASPK-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:10 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 20 | Sb | 120 |
| Cd | 10 | Se | 10 |
| Pb | 20 | Tl | 20 |

| CCV/ICV Standard [†] | | | |
|-------------------------------|-------|---|-------|
| QCP-CICV-4 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:50 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 25 | Sb | 50 |
| Cd | 5 | Se | 50 |
| Pb | 25 | Tl | 25 |

| Calibration Standard | | | |
|----------------------|-------|--|-------|
| CLPF-CAL-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:100 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 50 | Sb | 100 |
| Cd | 10 | Se | 100 |
| Pb | 50 | Tl | 50 |

| Predigestion Spiking Standard | | | |
|-------------------------------|-------|--|-------|
| CLPF-PSPK-1 | | Volume: 125 mL Matrix: HNO ₃ Dilution 1:1,000 | |
| Analyte | µg/mL | Analyte | µg/mL |
| As | 40 | Sb | 100 |
| Cd | 5 | Se | 10 |
| Pb | 20 | Tl | 50 |

[†]Manufactured from in-house Second Source concentrates.



Should you ever have a problem with any standard, Water QC or otherwise, let us know. We'll immediately investigate the problem by testing a retained sample of your solution. If the error is on our end, you'll be offered a full refund or a free replacement – your choice. Our priority is your total satisfaction.

Customer Satisfaction — The primary reason we flex to your specs.

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- ✓ Traceable to NIST SRMs and lots
- ✓ Produced under ISO 9001
- ✓ Produced under ISO 17025
- ✓ Produced under ISO Guide 34
- ✓ Assayed by optimal validated procedures



Courtney Dowdy, CSR–Domestic, and George Akers Jr., Facilities & Safety Coordinator/Shipping Supervisor

Custom potable water standards are available upon request.

| Bromate | |
|------------------------------------|--|
| ICBR031-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| BrO₃⁻ | 1,000 |

| Bromide | |
|-----------------------|--|
| ICBR1-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| Br⁻ | 1,000 |

| Cation Standard | |
|------------------------|---|
| QCP-CAT | Volume: 20 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | Range |
| Ca⁺² | 3.5–110 mg/L |
| K⁺ | 4–40 mg/L |
| Mg⁺² | 2–40 mg/L |
| Na⁺ | 6–100 mg/L |

| Chlorate | |
|------------------------------------|--|
| ICCL031-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| ClO₃⁻ | 1,000 |

| Chlorite | |
|------------------------------------|--|
| ICCL021-1 | Volume: 125 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| ClO₂⁻ | 1,000 |

NOTE: Contains less than 10ppm ClO₃⁻.

| Cyanide Standard | |
|---|---|
| QCP-CN | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Total Cyanide | 0.1–1 mg/L |
| Free Cyanide | 0.05–0.5 mg/L |
| Cyanide Amenable to Chlorination | 0.05–0.5 mg/L |

| Demand Standard | |
|-----------------|---|
| QCP-DMD | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| TOC | 6–100 mg/L |
| COD | 30–250 mg/L |
| CBOD | 15–250 mg/L |
| BOD | 15–250 mg/L |

| Hg Standard | |
|----------------|---|
| QCP-HG | Volume: 20 mL Matrix: HNO ₃ Dilution 1:200 |
| Analyte | Range* |
| Hg | 2–30 µg/L |

Used in conjunction with QCP-TMS and QCP-MTL. *Parts per billion

| Water Hardness Standard | |
|-------------------------------------|--|
| QCP-WH | Volume: 500 mL Matrix: HNO ₃ Dilution: Ready to Use |
| Analyte | Range |
| Ca | 8.7–275 mg/L |
| Mg | 2.9–92 mg/L |
| Hardness as CaCO₃ | 17–440 mg/L |

| pH Standard | |
|----------------|---|
| QCP-PH | Volume: 20 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| pH | 5–10 units |

POTABLE WATER STANDARDS

Potable Water Standards

| Metals Standard | |
|-----------------|---|
| QCP-MTL | Volume: 20 mL Matrix: HNO ₃ Dilution 1:200 |
| Analyte | Range* |
| Ag | 26–1,000 µg/L |
| Al | 200–4,000 µg/L |
| As | 70–900 µg/L |
| Ba | 100–2,500 µg/L |
| Be | 8–900 µg/L |
| Ca | 3.5–110 mg/L |
| Cd | 8–1,000 µg/L |
| Cr | 17–1,000 µg/L |
| Cu | 40–1,000 µg/L |
| Fe | 200–4,000 µg/L |
| Mn | 70–4,000 µg/L |
| Ni | 80–3,000 µg/L |
| Pb | 70–3,000 µg/L |
| Sb | 90–900 µg/L |
| Se | 90–2,000 µg/L |
| Tl | 60–900 µg/L |
| Zn | 100–2,000 µg/L |

*Parts per billion

| Minerals Standard | |
|------------------------------------|--|
| QCP-MIN | Volume: 500 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| Cl⁻ | 35–275 mg/L |
| F⁻ | 0.3–4 mg/L |
| K⁺ | 4–40 mg/L |
| Nitrate as Nitrogen | 0.25–40 mg/L |
| Conductivity | 200–1,200 µmhos |
| Alkalinity | 10–400 mg/L |
| Na⁺ | 6–100 mg/L |
| SO₄⁻² | 5–125 mg/L |

| Nitrite Standard | |
|----------------------------|--|
| QCP-NT | Volume: 20 mL Matrix: H ₂ O Dilution: 1:100 |
| Analyte | Range |
| Nitrite as Nitrogen | 0.4–4 mg/L |

| Simple Nutrients Standard | |
|---|---|
| QCP-NUT-1 | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Phosphate as Phosphorus | 0.5–5.5 mg/L |
| Nitrate plus Nitrite as Nitrogen | 0.25–40 mg/L |
| Nitrate as Nitrogen | 0.25–40 mg/L |
| Ammonium as Nitrogen | 0.65–20 mg/L |

| Simulated Rainwater Standard | |
|------------------------------------|--|
| QCP-RAIN | Volume: 125 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| Ca⁺² | 3.5–110 mg/L |
| Cl⁻ | 35–275 mg/L |
| F⁻ | 0.3–4 mg/L |
| K⁺ | 4–40 mg/L |
| Mg⁺² | 2–40 mg/L |
| pH | 5–10 units |
| Conductivity | 200–1,200 µmhos |
| Na⁺ | 6–100 mg/L |
| NH₄⁺ | 0.79–24 mg/L |
| NO₃⁻ | 1.1–177 mg/L |
| SO₄⁻² | 5–125 mg/L |

| Total Residual Chlorine Standard | |
|----------------------------------|--|
| QCP-TRC | Volume: 10 mL Matrix: H ₂ O Dilution: 1:200 |
| Analyte | Range |
| Total Residual Chlorine | 0.5–3.0 mg/L |

| Turbidity Standard | |
|--------------------|--|
| QCP-TURB | Volume: 20 mL Matrix: H ₂ O Dilution: 1:100 |
| Analyte | Range |
| Turbidity | 2–30 NTU |

Custom wastewater standards are available upon request.

| Cation Standard | |
|------------------|---|
| QCP-CAT | Volume: 20 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | Range |
| Ca ⁺² | 3.5–110 mg/L |
| K ⁺ | 4–40 mg/L |
| Mg ⁺² | 2–40 mg/L |
| Na ⁺ | 6–100 mg/L |

| Demand Standard | |
|-----------------|---|
| QCP-DMD | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| TOC | 6–100 mg/L |
| COD | 30–250 mg/L |
| CBOD | 15–250 mg/L |
| BOD | 15–250 mg/L |

| Chromium ⁺⁶ Standard | |
|---------------------------------|---|
| QCP-CR6 | Volume: 20 mL Matrix: H ₂ O Dilution 1:100 |
| Analyte | Range* |
| Cr ⁺⁶ | 45–900 µg/L |

*Parts per billion

| Hardness Standard | |
|-------------------------------|--|
| QCP-WH | Volume: 500 mL Matrix: HNO ₃ Dilution: Ready to Use |
| Analyte | Range |
| Ca | 8.7–275 mg/L |
| Mg | 2.9–92 mg/L |
| Hardness as CaCO ₃ | 17–440 mg/L |

| Complex Nutrients Standard | |
|--|---|
| QCP-NUT-2 | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Total Organic Phosphorus as Phosphorus (P) | 0.5–10 mg/L |
| Total Kjeldahl Nitrogen as Nitrogen (N) | 1.5–35 mg/L |

| Cyanide Standard | |
|----------------------------------|---|
| QCP-CN | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Total Cyanide | 0.01–1 mg/L |
| Free Cyanide | 0.05–0.5 mg/L |
| Cyanide Amenable to Chlorination | 0.05–0.5 mg/L |



Roy Pesciotta, Regulatory Administrator, and
Tammy Shepherd, Domestic Sales and Marketing Supervisor

WASTEWATER STANDARDS

Wastewater Standards

Custom wastewater standards are available upon request.

| Hg Standard | |
|---------------|---|
| QCP-HG | Volume: 20 mL Matrix: HNO ₃ Dilution 1:200 |
| Analyte | Range* |
| Hg | 2–30 µg/L |

Used in conjunction with QCP-TMS and QCP-MTL. *Parts per billion.

| pH Standard | |
|---------------|---|
| QCP-PH | Volume: 20 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| pH | 5–10 units |

| Minerals Standard | |
|------------------------------------|--|
| QCP-MIN | Volume: 500 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| Cl⁻ | 35–275 mg/L |
| F⁻ | 0.3–4 mg/L |
| K⁺ | 4–40 mg/L |
| Nitrate as Nitrogen | 0.25–40 mg/L |
| Conductivity | 200–1,200 µmhos |
| Alkalinity | 10–400 mg/L |
| Na⁺ | 6–100 mg/L |
| SO₄⁻² | 5–125 mg/L |

| Phenolics Standard | |
|------------------------|---|
| QCP-PHEN | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Total Phenolics | 0.06–5 mg/L |

| Oil & Grease Standard | |
|-------------------------|--|
| QCP-OG-A | Volume: 20 mL Matrix: Acetone Dilution 1:100 |
| Analyte | Range |
| Oil & Grease | 20–200 mg/L |

Applicable to gravimetric methods only.

| Simple Nutrients Standard | |
|---|---|
| QCP-NUT-1 | Volume: 20 mL Matrix: H ₂ O Dilution 1:200 |
| Analyte | Range |
| Phosphate as Phosphorus | 0.5–5.5 mg/L |
| Nitrate plus Nitrite as Nitrogen | 0.25–40 mg/L |
| Nitrate as Nitrogen | 0.25–40 mg/L |
| Ammonium as Nitrogen | 0.65–20 mg/L |

| Oil & Grease Standard | |
|-------------------------|--|
| QCP-OG-W | Volume: 250 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| Oil & Grease | 20–200 mg/L |



Laura Dickerson, Manufacturing Technician, and
Nicholas Plymale, Quality Control Technician

| Solids Standard | |
|---|--|
| QCP-SLD | Volume: 450 mL Matrix: H ₂ O Dilution: Ready to Use |
| Analyte | Range |
| Total Solids (total residue) | 140–800 mg/L |
| Suspended Solids (nonfilterable residue) | 20–100 mg/L |
| Dissolved Solids (filterable residue) | 140–800 mg/L |

| Total Residual Chlorine Standard | |
|----------------------------------|--|
| QCP-TRC | Volume: 10 mL Matrix: H ₂ O Dilution: 1:200 |
| Analyte | Range |
| Total Residual Chlorine | 0.5–3.0 mg/L |

| 1,000 µg/mL Total Cyanide | |
|---------------------------|---|
| CN-1000-25 | Volume: 20 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| CN- | 1,000 |

| Mercury Standard | |
|------------------|-------------------------------|
| MSHG-1PPM | Volume: 125 mL Matrix: HCl |
| Analyte | µg/mL |
| Hg | 1 |

| Trace Metals Standard | |
|-----------------------|---|
| QCP-TMS | Volume: 20 mL Matrix: HNO ₃ Dilution 1:100 |
| Analyte | Range* |
| Ag | 26–1,000 µg/L |
| Al | 200–4,000 µg/L |
| As | 70–900 µg/L |
| B | 800–2,000 µg/L |
| Ba | 100–2,500 µg/L |
| Be | 8–900 µg/L |
| Cd | 8–1,000 µg/L |
| Co | 28–1,000 µg/L |
| Cr | 17–1,000 µg/L |
| Cu | 40–1,000 µg/L |
| Fe | 200–4,000 µg/L |
| Mn | 70–4,000 µg/L |
| Mo | 60–600 µg/L |
| Ni | 80–3,000 µg/L |
| Pb | 70–3,000 µg/L |
| Sb | 90–900 µg/L |
| Se | 90–2,000 µg/L |
| Sr | 30–500 µg/L |
| Tl | 60–900 µg/L |
| V | 50–2,000 µg/L |
| Zn | 100–2,000 µg/L |

*Parts per billion

| Turbidity Standard | |
|--------------------|--|
| QCP-TURB | Volume: 20 mL Matrix: H ₂ O Dilution: 1:100 |
| Analyte | Range |
| Turbidity | 2–30 NTU |

1,000 µg/mL Standards

Custom wastewater standards are available upon request.

1,000 µg/mL

| ANALYTE | MATRIX | STARTING MATERIAL | VOLUME | CATALOG # |
|------------------|------------------|-------------------|------------------|------------------------|
| Carbon, C | H ₂ O | KHP | 125 mL 500 mL | TOCKHP1-1 TOCKHP1-5 |



At times, Wet Chemistry involves some difficult and unusual techniques. If you find yourself in a bind, give us a call. One of our experts will be happy to assist you. Plus, we offer analytical advice and in-depth technical guides on our website, inorganicventures.com.

Shared Knowledge — The most rewarding part of how we flex to your specs.

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- ✓ Traceable to NIST SRMs and lots*
- ✓ Produced under ISO 9001
- ✓ Produced under ISO 17025*
- ✓ Produced under ISO Guide 34*
- ✓ Assayed by optimal validated procedures

*Not applicable for sample preparation products.



Uyen Truong,
Quality Control
Technician, and
Tabitha Wright,
Administrative Assistant

Conductivity Standards

Custom conductivity standards are available upon request. |

| 2 µmhos/cm Conductivity at 25°C | |
|---------------------------------|----------------|
| Matrix: H ₂ O | |
| CON2-25 | Volume: 125 mL |
| CON2-25-5 | Volume: 500 mL |

| 10 µmhos/cm Conductivity at 25°C | |
|----------------------------------|----------------|
| Matrix: H ₂ O | |
| CON10-25 | Volume: 125 mL |
| CON10-25-5 | Volume: 500 mL |

| 100 µmhos/cm Conductivity at 25°C | |
|-----------------------------------|----------------|
| Matrix: H ₂ O | |
| CON100-25 | Volume: 125 mL |
| CON100-25-5 | Volume: 500 mL |
| CON100-25-1L | Volume: 1 L |

| 147 µmhos/cm Conductivity at 25°C | |
|-----------------------------------|----------------|
| Matrix: H ₂ O | |
| CON147-25 | Volume: 125 mL |
| CON147-25-5 | Volume: 500 mL |
| CON147-25-1L | Volume: 1 L |

| 500 µmhos/cm Conductivity at 25°C | |
|-----------------------------------|----------------|
| Matrix: H ₂ O | |
| CON500-25 | Volume: 125 mL |
| CON500-25-5 | Volume: 500 mL |
| CON500-25-1L | Volume: 1 L |

| 1,000 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON1000-25 | Volume: 125 mL |
| CON1000-25-5 | Volume: 500 mL |
| CON1000-25-1L | Volume: 1 L |

| 1,200 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON1200-25 | Volume: 125 mL |
| CON1200-25-5 | Volume: 500 mL |
| CON1200-25-1L | Volume: 1 L |

| 1,400 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON1400-25 | Volume: 125 mL |
| CON1400-25-5 | Volume: 500 mL |
| CON1400-25-1L | Volume: 1 L |

| 1,413 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON1413-25 | Volume: 125 mL |
| CON1413-25-5 | Volume: 500 mL |
| CON1413-25-1L | Volume: 1 L |

| 1,430 µmhos/cm Conductivity at 25°C | |
|-------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON1430-25 | Volume: 125 mL |
| CON1430-25-5 | Volume: 500 mL |
| CON1430-25-1L | Volume: 1 L |

| 10,000 µmhos/cm Conductivity at 25°C | |
|--------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON10000-25 | Volume: 125 mL |
| CON10000-25-5 | Volume: 500 mL |
| CON10000-25-1L | Volume: 1 L |

| 100,000 µmhos/cm Conductivity at 25°C | |
|---------------------------------------|----------------|
| Matrix: H ₂ O | |
| CON100000-25 | Volume: 125 mL |
| CON100000-25-5 | Volume: 500 mL |
| CON100000-25-1L | Volume: 1 L |

Cyanide Standards

Custom cyanide standards are available upon request.

| 1,000 µg/mL Total Cyanide | |
|---------------------------|---|
| CN-1000-25 | Volume: 20 mL Matrix: H ₂ O |
| Analyte | µg/mL |
| CN ⁻ | 1,000 |

pH Standards

Custom pH standards are available upon request.


| PH | STARTING MATERIAL | VOLUME | CATALOG # |
|---------|---|--------|-------------|
| pH 1.68 | Potassium tetroxalate | 250 mL | PH-1.68 |
| | | 500 mL | PH-1.68-5 |
| | | 1 L | PH-1.68-1L |
| | | 4 L | PH-1.68-4L |
| | | 10 L | PH-1.68-10L |
| pH 2 | Potassium chloride and hydrochloric acid | 250 mL | PH-2 |
| | | 500 mL | PH-2-5 |
| | | 1 L | PH-2-1L |
| | | 4 L | PH-2-4L |
| | | 10 L | PH-2-10L |
| pH 3 | Potassium acid phthalate and hydrochloric acid | 250 mL | PH-3 |
| | | 500 mL | PH-3-5 |
| | | 1 L | PH-3-1L |
| | | 4 L | PH-3-4L |
| | | 10 L | PH-3-10L |
| pH 4 | Potassium acid phthalate | 250 mL | PH-4 |
| | | 500 mL | PH-4-5 |
| | | 1 L | PH-4-1L |
| | | 4 L | PH-4-4L |
| | | 10 L | PH-4-10L |
| pH 5 | Potassium acid phthalate and sodium hydroxide | 250 mL | PH-5 |
| | | 500 mL | PH-5-5 |
| | | 1 L | PH-5-1L |
| | | 4 L | PH-5-4L |
| | | 10 L | PH-5-10L |
| pH 6 | Monobasic potassium phosphate and sodium hydroxide | 250 mL | PH-6 |
| | | 500 mL | PH-6-5 |
| | | 1 L | PH-6-1L |
| | | 4 L | PH-6-4L |
| | | 10 L | PH-6-10L |
| pH 7 | Monobasic potassium phosphate and sodium hydroxide | 250 mL | PH-7 |
| | | 500 mL | PH-7-5 |
| | | 1 L | PH-7-1L |
| | | 4 L | PH-7-4L |
| | | 10 L | PH-7-10L |
| pH 8 | Monobasic potassium phosphate and sodium hydroxide | 250 mL | PH-8 |
| | | 500 mL | PH-8-5 |
| | | 1 L | PH-8-1L |
| | | 4 L | PH-8-4L |
| | | 10 L | PH-8-10L |
| pH 9 | Boric acid, potassium chloride and sodium hydroxide | 250 mL | PH-9 |
| | | 500 mL | PH-9-5 |
| | | 1 L | PH-9-1L |
| | | 4 L | PH-9-4L |
| | | 10 L | PH-9-10L |
| pH 10 | Sodium bicarbonate and sodium carbonate | 250 mL | PH-10 |
| | | 500 mL | PH-10-5 |
| | | 1 L | PH-10-1L |
| | | 4 L | PH-10-4L |
| | | 10 L | PH-10-10L |
| pH 11 | Dibasic sodium phosphate and sodium hydroxide | 250 mL | PH-11 |
| | | 500 mL | PH-11-5 |
| | | 1 L | PH-11-1L |
| | | 4 L | PH-11-4L |
| | | 10 L | PH-11-10L |
| pH 12 | Potassium chloride and sodium hydroxide | 250 mL | PH-12 |
| | | 500 mL | PH-12-5 |
| | | 1 L | PH-12-1L |
| | | 4 L | PH-12-4L |
| | | 10 L | PH-12-10L |


pH Standards in Color


ISO Guide 34 and ISO 17025 pH Buffers Now in color

Introducing pH 4, 7, and 10 colored buffers certified to ISO Guide 34 and ISO 17025 requirements. These products complement our full colorless pH line pH 1.68-12 ISO Guide 34 and ISO 17025 buffers.



|  pH 4 Red | |
|--|----------|
| Part Number | Volume |
| PHRED-4 | 250mL |
| PHRED-4-5 | 500mL |
| PHRED-4-1L | 1 Liter |
| PHRED-4-4L | 4 Liter |
| PHRED-4-10L | 10 Liter |

|  pH 7 Yellow | |
|---|----------|
| Part Number | Volume |
| PHYELLOW-7 | 250mL |
| PHYELLOW-7-5 | 500mL |
| PHYELLOW-7-1L | 1 Liter |
| PHYELLOW-7-4L | 4 Liter |
| PHYELLOW-7-10L | 10 Liter |

|  pH 10 Blue | |
|--|----------|
| Part Number | Volume |
| PHBLUE-10 | 250mL |
| PHBLUE-10-5 | 500mL |
| PHBLUE-10-1L | 1 Liter |
| PHBLUE-10-4L | 4 Liter |
| PHBLUE-10-10L | 10 Liter |

Dissolution Reagents

Designed for the preparation and measurement of samples containing silica mixed with fluoride insoluble elements, including: zeolites, alumina and/or silica based catalysts, sand, limestone, coal fly ash, and talc. The dissolution of these types of materials requires HF. See the article entitled *Elemental Analysis of Zeolites* on our website for more information.

| Acid Dissolution Reagent | |
|--|--------|
| UA-1 | 500 mL |
| Recommended for the dissolution of aluminosilicates, such as zeolites. | |

| Acid Dissolution Reagent | |
|--|--------|
| UA-5 | 500 mL |
| Designed to handle samples high in calcium, such as limestone. | |

| Acid Dissolution Reagent [†] | |
|---|--------|
| UA-2 | 500 mL |
| Designed to dissolve coal fly ash and aluminosilicates. | |

| Acid Dissolution Reagent | |
|---|--------|
| UA-6 | 500 mL |
| Designed for samples high in magnesium, such as dolomite. | |

| Acid Dissolution Reagent* | |
|--|--------|
| UA-3 | 500 mL |
| Similar to UA-2, except UA-3 can handle higher levels of iron. | |

| Acid Dissolution Reagent | |
|--|--------|
| UA-7 | 500 mL |
| Designed for the determination of trace elements in samples containing predominately silica, such as silica gel. | |

| Acid Dissolution Reagent | |
|--|--------|
| UA-4 | 500 mL |
| Designed for the dissolution of aluminosilicates, such as zeolites, containing moderate to high levels of fluoride-insoluble elements. | |

[†]Boron cannot be determined.
*Boron and Phosphorus cannot be determined.

Blank & Rinse Solutions

Blank and rinse solutions are prepared using double-distilled nitric acid and ASTM Type 1 water. They come packaged in ultra-clean LDPE bottles. Custom blank and rinse solutions are available upon request.

| 5% (v/v) Nitric Acid Blank | |
|----------------------------|--|
| IV-ACID-BLANK | Volume: 500 mL Matrix: HNO ₃ |

| Deionized Blank | |
|--------------------|--|
| IV-DI-BLANK | Volume: 500 mL Matrix: H ₂ O |

| 1% (v/v) Nitric Acid Calibration Blank | |
|--|--|
| CLP-MS-BLANK | Volume: 125 mL Matrix: HNO ₃ Dilution: Ready to Use |

| 2% (v/v) Nitric Acid Rinse | |
|----------------------------|--|
| CLP-MS-RINSE | Volume: 125 mL Matrix: HNO ₃ Dilution: Ready to Use |

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

For use with ICP-MS. Designed for ILM05.2 and ILM05.3.

Neutralizers & Stabilizers

These products are applicable to the determination of aluminosilicates containing various elements. For details, refer to the description for Dissolution Reagents on the preceding page.

| Stabilizing Reagent | |
|-----------------------------|-------|
| UNS-1 | 2.5 L |
| Designed for use with UA-1. | |

| Stabilizing Reagent | |
|---|-------|
| UNS-2-SET | 2.5 L |
| Two reagent set consisting of equal amounts of UNS-2A and UNS-2B. Recommended for use with UA-2, UA-3, UA-4, or UA-5. | |

| Stabilizing Reagent | |
|-----------------------------|-------|
| UNS-3 | 2.5 L |
| Designed for use with UA-7. | |

| Stabilizing Reagent | |
|---|-------|
| UNS-4 | 2.5 L |
| Prevents salting-out effects from borate fusions and/or boric acid treated HF preparations. Also recommended for use with UA-6. | |

| Stabilizing Reagent | |
|--|-------|
| UNS-100 | 2.5 L |
| For use with all acids and applications. Improved capacity. Contact us for more information. | |

| Stabilizing Reagent | |
|--|-------|
| UNS-300 | 2.5 L |
| For use with all acids and applications. Improved capacity. Contact us for more information. | |

Fusion Fluxes

Custom fusion fluxes are available upon request.

| Lithium Carbonate | |
|--|-------|
| FF-LI2C03 | 500 g |
| See section 13 of the Reliable Measurements Guide found on our website for a sample preparation method designed to work perfectly with this product. | |



Robert Cortez, Lead, CSR–Domestic, and
Melissa Holtz, CSR–Domestic

| | |
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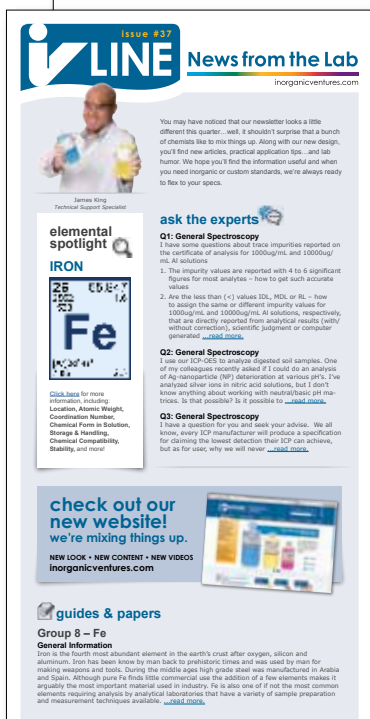
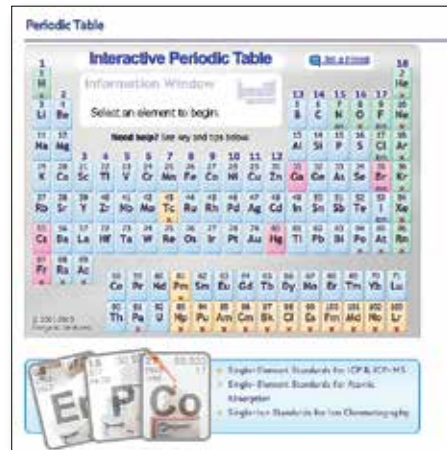
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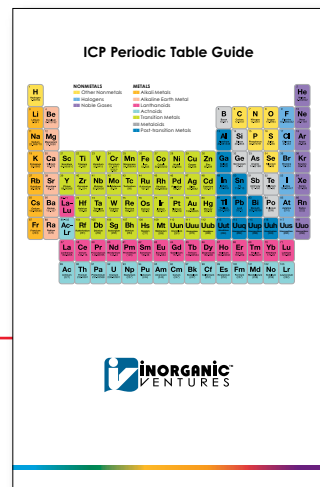
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