

Multi-Element Standards: Precision for Your Analyses

**Your Experts for High-Quality Standards
– for Over 30 Years**

▶ Your Partner for Precision and Safety

Welcome to the World of Multi-Element Standards!

Our solutions are designed to make your work easier, faster, and safer. As a leading provider, we guarantee the highest quality – tailored to your individual requirements.

A Benefit for Every Industry:

- ▶ **Environmental Analytics:**
Precise results for monitoring water and soil.
- ▶ **Food Safety:**
Clean and safe products through precise analyses.
- ▶ **Industry:**
Maximum quality assurance in your production.

Why AnalytiChem?

- ▶ Over 50 years of experience.
- ▶ Traceability to international standards such as NIST.
- ▶ Flexibility through customized solutions.

Our promise:

Quality that relieves and impresses you – for every challenge.



▶ Three quality levels – perfectly tailored to your needs.

Whether you're conducting routine analyses or require the highest precision – we offer the right solution:

Level 1: Efficient and cost-effective.

You need reliable standards for your daily routine analyses? Our Level 1 products are made exactly for this purpose: fast, simple, and cost-effective. The production of multi-element standards is carried out from analytically monitored concentrates or certified raw materials through precise volumetric

Your benefits:

- ▶ Quick availability.
- ▶ High quality at an attractive price.
- ▶ Perfect for daily use in operational laboratories.

or gravimetric manufacturing steps. No analytical final inspection of the product is performed. The batch certificate lists the nominal concentrations as determined during manufacturing, without tolerance ranges.

Typical applications:

- ▶ Quality assurance in production.
- ▶ Control measurements without complex requirements.

Level 2: More security through tested precision.

For these multi-element standards, we send a sample to a laboratory accredited according to ISO 17025. With the delivery of the product, you will receive the test report from the independent laboratory. The test report provides the analytical results as the average of a four-fold determination, along with the corresponding confidence intervals. We expressly point out that the size of the confidence interval, as it would result, depends on the analytical method, the concentration

Your benefits:

- ▶ Test report from an independent, renowned laboratory accredited according to ISO 17025.
- ▶ Greater security through documented measurement results.
- ▶ Traceability to NIST standards.

of the analyte, and the matrix of the solution. Therefore, the confidence interval cannot be predefined, restricted, or predicted. NIST traceability is achieved by using independent standards that are traceable to NIST for the analyses. The NIST SRM to which the respective standard used for measurement is traceable will be indicated in the test report. These products are suitable for higher analytical requirements and for traceability to reference materials.

Typical applications:

- ▶ Audits and validations.
- ▶ Laboratories with higher accuracy requirements.

Level 3: Certified Reference Materials (CRM) for the highest standards.

Since the end of 2023, all companies within the AnalytiChem Group have been approved reference material manufacturers according to ISO 17034. Production and analytics are carried out in-house. You will receive a batch certificate with the product. Our Level 3 products meet the strictest standards and offer maximum security. Certified Reference Materials (CRM) according to ISO 17034 guarantee precision and stability – ideal for accredited applications. The production of custom-certified multi-element standards is possible based on the following element concentrations and combinations, as long-term stability studies are available for these.

Your benefits:

- ▶ Long-term stable and homogeneous materials.
- ▶ Certificates with DAKS logo for maximum security.
- ▶ Developed for the strictest requirements.

2 to 200 mg/L in 5% Nitric Acid:

Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ho, In, K, La, Li, Lu, Mg, Mn, Na, Nd, Ni, P, Pb, Pr, Re, Sc, Se, Sm, Sr, Tb, Th, Tl, Tm, V, Y, Yb, Zn

2 to 1000 mg/L in 5% Nitric Acid:

Al, Ca, Cu, Fe, K, Mg, Na, P, Zn.

2 to 200 mg/L in 15% Hydrochloric Acid:

Au, Ir, Pd, Pt, Rh, Ru.

2 to 200 mg/L in 5% Nitric Acid with 0.5% HF:

Ag, Hf, Mo, Nb, Sb, Sn, Ta, Ti, W, Zn, Te.

Typical applications:

- ▶ Accredited Laboratory Analyses
- ▶ Legally Mandated Quality Controls

Our ready-to-use multi-element standard solutions: The quick solution for ICP applications.

With our ready-to-use multi-element standard solutions, developed in collaboration with Spectro Analytical Instruments, you receive pre-made multi-element standards that cover all common requirements.

These solutions combine precision with availability and are ready for immediate use.

Your benefits:


- ▶ Optimal combinations for universal applications.
- ▶ Versatile uses, e.g., in environmental analytics.
- ▶ Perfect for standardized applications according to EPA standards.
- ▶ Traceable to NIST.

Multi-element standard solution	Multi-element standard solution	Multi-element standard solution	Multi-element standard solution	Multi-element standard solution	Multi-element standard solution																																																																																																																																																																																																																																																						
Bernd Kraft I	Bernd Kraft II	Bernd Kraft III	Bernd Kraft IV	Bernd Kraft V	Bernd Kraft VI																																																																																																																																																																																																																																																						
27 elements	33 elements	25 elements	9 elements	6 elements	17 elements																																																																																																																																																																																																																																																						
in nitric acid 1 mol/L with the density specified Packaging size: 100 ml	in acid mixture with the density specified Packaging size: 100 ml	in nitric acid 1 mol/L (6%) with the density specified Packaging size: 100 ml	in hydrochloric acid 4.4 mol/L (15%) with the density specified Packaging size: 100 ml	in hydrochloric acid 3 mol/L (10%) with the density specified Packaging size: 100 ml	in nitric acid 1 mol/L (6%) with the density specified Packaging size: 100 ml																																																																																																																																																																																																																																																						
Item No. 34033.0000	Item No. 34034.0000	Item No. 34035.0300	Item No. 34036.0000	Item No. 34037.0000	Item No. 34038.0000																																																																																																																																																																																																																																																						
► Universal calibration solution	► EPA environmental standard	► Drinking water standard	► Universal calibration solution	► Precious metals standard	► Rare earth elements standard																																																																																																																																																																																																																																																						
<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>As</td><td>100</td></tr><tr><td>Al</td><td>100</td></tr><tr><td>B</td><td>100</td></tr><tr><td>Ba</td><td>100</td></tr><tr><td>Be</td><td>100</td></tr><tr><td>Bi</td><td>100</td></tr><tr><td>Ca</td><td>100</td></tr><tr><td>Cd</td><td>100</td></tr><tr><td>Co</td><td>100</td></tr><tr><td>Cr</td><td>100</td></tr><tr><td>Cu</td><td>100</td></tr><tr><td>Fe</td><td>100</td></tr><tr><td>Ga</td><td>100</td></tr><tr><td>In</td><td>100</td></tr><tr><td>K</td><td>100</td></tr><tr><td>Li</td><td>100</td></tr><tr><td>Mg</td><td>100</td></tr><tr><td>Mn</td><td>100</td></tr><tr><td>Na</td><td>100</td></tr><tr><td>Ni</td><td>100</td></tr><tr><td>Pb</td><td>100</td></tr><tr><td>Se</td><td>100</td></tr><tr><td>Sr</td><td>100</td></tr><tr><td>Te</td><td>100</td></tr><tr><td>Tl</td><td>100</td></tr><tr><td>V</td><td>100</td></tr><tr><td>Zn</td><td>100</td></tr></table>	Element	mg/l	As	100	Al	100	B	100	Ba	100	Be	100	Bi	100	Ca	100	Cd	100	Co	100	Cr	100	Cu	100	Fe	100	Ga	100	In	100	K	100	Li	100	Mg	100	Mn	100	Na	100	Ni	100	Pb	100	Se	100	Sr	100	Te	100	Tl	100	V	100	Zn	100	<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>Ag</td><td>5</td></tr><tr><td>Al</td><td>20</td></tr><tr><td>Au</td><td>20</td></tr><tr><td>As</td><td>20</td></tr><tr><td>B</td><td>20</td></tr><tr><td>Ba</td><td>20</td></tr><tr><td>Be</td><td>20</td></tr><tr><td>Bi</td><td>20</td></tr><tr><td>Ca</td><td>20</td></tr><tr><td>Cd</td><td>20</td></tr><tr><td>Co</td><td>20</td></tr><tr><td>Cr</td><td>20</td></tr><tr><td>Cu</td><td>20</td></tr><tr><td>Fe</td><td>20</td></tr><tr><td>Hg</td><td>20</td></tr><tr><td>K</td><td>100</td></tr><tr><td>Li</td><td>20</td></tr><tr><td>Mg</td><td>20</td></tr><tr><td>Mn</td><td>20</td></tr><tr><td>Mo</td><td>20</td></tr><tr><td>Na</td><td>20</td></tr><tr><td>Ni</td><td>20</td></tr><tr><td>P</td><td>100</td></tr><tr><td>Pb</td><td>20</td></tr><tr><td>Se</td><td>20</td></tr><tr><td>Si</td><td>20</td></tr><tr><td>Sn</td><td>20</td></tr><tr><td>Sr</td><td>20</td></tr><tr><td>Tl</td><td>20</td></tr><tr><td>V</td><td>20</td></tr><tr><td>Zn</td><td>20</td></tr><tr><td>Sb</td><td>20</td></tr><tr><td>Te</td><td>20</td></tr></table>	Element	mg/l	Ag	5	Al	20	Au	20	As	20	B	20	Ba	20	Be	20	Bi	20	Ca	20	Cd	20	Co	20	Cr	20	Cu	20	Fe	20	Hg	20	K	100	Li	20	Mg	20	Mn	20	Mo	20	Na	20	Ni	20	P	100	Pb	20	Se	20	Si	20	Sn	20	Sr	20	Tl	20	V	20	Zn	20	Sb	20	Te	20	<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>As</td><td>0,05</td></tr><tr><td>B</td><td>0,1</td></tr><tr><td>Ba</td><td>0,05</td></tr><tr><td>Be</td><td>0,02</td></tr><tr><td>Bi</td><td>0,01</td></tr><tr><td>Ca</td><td>35</td></tr><tr><td>Cd</td><td>0,02</td></tr><tr><td>Co</td><td>0,02</td></tr><tr><td>Cr</td><td>0,02</td></tr><tr><td>Cu</td><td>0,02</td></tr><tr><td>Fe</td><td>0,1</td></tr><tr><td>Hg</td><td>0,01</td></tr><tr><td>K</td><td>3</td></tr><tr><td>Mg</td><td>15</td></tr><tr><td>Mn</td><td>0,03</td></tr><tr><td>Mo</td><td>0,1</td></tr><tr><td>Na</td><td>8</td></tr><tr><td>Ni</td><td>0,05</td></tr><tr><td>Pb</td><td>0,02</td></tr><tr><td>Sb</td><td>0,01</td></tr><tr><td>Se</td><td>0,01</td></tr><tr><td>Sr</td><td>0,1</td></tr><tr><td>Tl</td><td>0,01</td></tr><tr><td>V</td><td>0,05</td></tr><tr><td>Zn</td><td>0,05</td></tr></table>	Element	mg/l	As	0,05	B	0,1	Ba	0,05	Be	0,02	Bi	0,01	Ca	35	Cd	0,02	Co	0,02	Cr	0,02	Cu	0,02	Fe	0,1	Hg	0,01	K	3	Mg	15	Mn	0,03	Mo	0,1	Na	8	Ni	0,05	Pb	0,02	Sb	0,01	Se	0,01	Sr	0,1	Tl	0,01	V	0,05	Zn	0,05	<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>Ge</td><td>100</td></tr><tr><td>Mo</td><td>100</td></tr><tr><td>P</td><td>100</td></tr><tr><td>S</td><td>100</td></tr><tr><td>Sb</td><td>100</td></tr><tr><td>Sn</td><td>100</td></tr><tr><td>Ti</td><td>100</td></tr><tr><td>W</td><td>100</td></tr><tr><td>Zr</td><td>100</td></tr></table>	Element	mg/l	Ge	100	Mo	100	P	100	S	100	Sb	100	Sn	100	Ti	100	W	100	Zr	100	<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>Au</td><td>100</td></tr><tr><td>Ir</td><td>100</td></tr><tr><td>Pd</td><td>100</td></tr><tr><td>Pt</td><td>100</td></tr><tr><td>Rh</td><td>100</td></tr><tr><td>Ru</td><td>100</td></tr></table>	Element	mg/l	Au	100	Ir	100	Pd	100	Pt	100	Rh	100	Ru	100	<table><tr><th>Element</th><th>mg/l</th></tr><tr><td>Ce</td><td>100</td></tr><tr><td>Dy</td><td>100</td></tr><tr><td>Er</td><td>100</td></tr><tr><td>Eu</td><td>100</td></tr><tr><td>Gd</td><td>100</td></tr><tr><td>Ho</td><td>100</td></tr><tr><td>La</td><td>100</td></tr><tr><td>Lu</td><td>100</td></tr><tr><td>Nd</td><td>100</td></tr><tr><td>Pr</td><td>100</td></tr><tr><td>Sc</td><td>100</td></tr><tr><td>Sm</td><td>100</td></tr><tr><td>Tb</td><td>100</td></tr><tr><td>Tm</td><td>100</td></tr><tr><td>U</td><td>100</td></tr><tr><td>Y</td><td>100</td></tr><tr><td>Yb</td><td>100</td></tr></table>	Element	mg/l	Ce	100	Dy	100	Er	100	Eu	100	Gd	100	Ho	100	La	100	Lu	100	Nd	100	Pr	100	Sc	100	Sm	100	Tb	100	Tm	100	U	100	Y	100	Yb	100
Element	mg/l																																																																																																																																																																																																																																																										
As	100																																																																																																																																																																																																																																																										
Al	100																																																																																																																																																																																																																																																										
B	100																																																																																																																																																																																																																																																										
Ba	100																																																																																																																																																																																																																																																										
Be	100																																																																																																																																																																																																																																																										
Bi	100																																																																																																																																																																																																																																																										
Ca	100																																																																																																																																																																																																																																																										
Cd	100																																																																																																																																																																																																																																																										
Co	100																																																																																																																																																																																																																																																										
Cr	100																																																																																																																																																																																																																																																										
Cu	100																																																																																																																																																																																																																																																										
Fe	100																																																																																																																																																																																																																																																										
Ga	100																																																																																																																																																																																																																																																										
In	100																																																																																																																																																																																																																																																										
K	100																																																																																																																																																																																																																																																										
Li	100																																																																																																																																																																																																																																																										
Mg	100																																																																																																																																																																																																																																																										
Mn	100																																																																																																																																																																																																																																																										
Na	100																																																																																																																																																																																																																																																										
Ni	100																																																																																																																																																																																																																																																										
Pb	100																																																																																																																																																																																																																																																										
Se	100																																																																																																																																																																																																																																																										
Sr	100																																																																																																																																																																																																																																																										
Te	100																																																																																																																																																																																																																																																										
Tl	100																																																																																																																																																																																																																																																										
V	100																																																																																																																																																																																																																																																										
Zn	100																																																																																																																																																																																																																																																										
Element	mg/l																																																																																																																																																																																																																																																										
Ag	5																																																																																																																																																																																																																																																										
Al	20																																																																																																																																																																																																																																																										
Au	20																																																																																																																																																																																																																																																										
As	20																																																																																																																																																																																																																																																										
B	20																																																																																																																																																																																																																																																										
Ba	20																																																																																																																																																																																																																																																										
Be	20																																																																																																																																																																																																																																																										
Bi	20																																																																																																																																																																																																																																																										
Ca	20																																																																																																																																																																																																																																																										
Cd	20																																																																																																																																																																																																																																																										
Co	20																																																																																																																																																																																																																																																										
Cr	20																																																																																																																																																																																																																																																										
Cu	20																																																																																																																																																																																																																																																										
Fe	20																																																																																																																																																																																																																																																										
Hg	20																																																																																																																																																																																																																																																										
K	100																																																																																																																																																																																																																																																										
Li	20																																																																																																																																																																																																																																																										
Mg	20																																																																																																																																																																																																																																																										
Mn	20																																																																																																																																																																																																																																																										
Mo	20																																																																																																																																																																																																																																																										
Na	20																																																																																																																																																																																																																																																										
Ni	20																																																																																																																																																																																																																																																										
P	100																																																																																																																																																																																																																																																										
Pb	20																																																																																																																																																																																																																																																										
Se	20																																																																																																																																																																																																																																																										
Si	20																																																																																																																																																																																																																																																										
Sn	20																																																																																																																																																																																																																																																										
Sr	20																																																																																																																																																																																																																																																										
Tl	20																																																																																																																																																																																																																																																										
V	20																																																																																																																																																																																																																																																										
Zn	20																																																																																																																																																																																																																																																										
Sb	20																																																																																																																																																																																																																																																										
Te	20																																																																																																																																																																																																																																																										
Element	mg/l																																																																																																																																																																																																																																																										
As	0,05																																																																																																																																																																																																																																																										
B	0,1																																																																																																																																																																																																																																																										
Ba	0,05																																																																																																																																																																																																																																																										
Be	0,02																																																																																																																																																																																																																																																										
Bi	0,01																																																																																																																																																																																																																																																										
Ca	35																																																																																																																																																																																																																																																										
Cd	0,02																																																																																																																																																																																																																																																										
Co	0,02																																																																																																																																																																																																																																																										
Cr	0,02																																																																																																																																																																																																																																																										
Cu	0,02																																																																																																																																																																																																																																																										
Fe	0,1																																																																																																																																																																																																																																																										
Hg	0,01																																																																																																																																																																																																																																																										
K	3																																																																																																																																																																																																																																																										
Mg	15																																																																																																																																																																																																																																																										
Mn	0,03																																																																																																																																																																																																																																																										
Mo	0,1																																																																																																																																																																																																																																																										
Na	8																																																																																																																																																																																																																																																										
Ni	0,05																																																																																																																																																																																																																																																										
Pb	0,02																																																																																																																																																																																																																																																										
Sb	0,01																																																																																																																																																																																																																																																										
Se	0,01																																																																																																																																																																																																																																																										
Sr	0,1																																																																																																																																																																																																																																																										
Tl	0,01																																																																																																																																																																																																																																																										
V	0,05																																																																																																																																																																																																																																																										
Zn	0,05																																																																																																																																																																																																																																																										
Element	mg/l																																																																																																																																																																																																																																																										
Ge	100																																																																																																																																																																																																																																																										
Mo	100																																																																																																																																																																																																																																																										
P	100																																																																																																																																																																																																																																																										
S	100																																																																																																																																																																																																																																																										
Sb	100																																																																																																																																																																																																																																																										
Sn	100																																																																																																																																																																																																																																																										
Ti	100																																																																																																																																																																																																																																																										
W	100																																																																																																																																																																																																																																																										
Zr	100																																																																																																																																																																																																																																																										
Element	mg/l																																																																																																																																																																																																																																																										
Au	100																																																																																																																																																																																																																																																										
Ir	100																																																																																																																																																																																																																																																										
Pd	100																																																																																																																																																																																																																																																										
Pt	100																																																																																																																																																																																																																																																										
Rh	100																																																																																																																																																																																																																																																										
Ru	100																																																																																																																																																																																																																																																										
Element	mg/l																																																																																																																																																																																																																																																										
Ce	100																																																																																																																																																																																																																																																										
Dy	100																																																																																																																																																																																																																																																										
Er	100																																																																																																																																																																																																																																																										
Eu	100																																																																																																																																																																																																																																																										
Gd	100																																																																																																																																																																																																																																																										
Ho	100																																																																																																																																																																																																																																																										
La	100																																																																																																																																																																																																																																																										
Lu	100																																																																																																																																																																																																																																																										
Nd	100																																																																																																																																																																																																																																																										
Pr	100																																																																																																																																																																																																																																																										
Sc	100																																																																																																																																																																																																																																																										
Sm	100																																																																																																																																																																																																																																																										
Tb	100																																																																																																																																																																																																																																																										
Tm	100																																																																																																																																																																																																																																																										
U	100																																																																																																																																																																																																																																																										
Y	100																																																																																																																																																																																																																																																										
Yb	100																																																																																																																																																																																																																																																										

We are here for you!

**Do you have any questions
or need a tailored solution?
Contact us!**

AnalytiChem GmbH
Stempelstraße 6, 47167 Duisburg
Phone: +49 203 5194-0
E-mail: info@analytichem.de
Website : www.analytichem.de



We are here for you!

Do you have any questions
or need a tailored solution?
Contact us!

AnalytiChem GmbH
Stempelstraße 6, 47167 Duisburg
Phone: +49 203 5194-0
E-mail: info@analytichem.de
Website: www.analytichem.de

analytichem 
your science enabled

AnalytiChem – Your reliable partner for multi-element standards!