



Metallo-Organic Standards

for Additives, Contaminants
and Wear Metals testing

#GoBeyondTheStandard

lgcstandards.com/VHG

Our Quality: ISO 17043 | ISO 17034 | ISO/IEC 17025 | ISO 9001

The LGC logo, consisting of the letters 'LGC' in a bold, sans-serif font, enclosed within a white circle. The background of the entire page is a high-contrast, black and white photograph of an engine's internal components, showing various metal parts, hoses, and a textured filter element.

LGC

VHG™ Metallo-Organic Standards

VHG™ Metallo-Organic Standards are designed with your needs in mind. With products tailored to a variety of industries, and custom options to meet any lab's unique testing requirements, VHG™ has the Metallo-Organic Standard solutions for additive, contaminant, and wear metals testing.



VHG™ has been manufacturing single and multi-element standards (both aqueous and oil-based) for more than 30 years. We also specialize in custom mixtures, should our stock products not suit your specific needs.

- Petroleum standards for analysis by ICP, ICP-MS, XRF, RDE, UVF, physical testing instruments and other oil analysis instruments
- VHG™ line of analytical reference standards are designed for both Oil Condition Monitoring and Fuels & Lubricant applications
- VHG™ Metallo-Organic Standards are created using our stringent manufacturing processes, which are [accredited to ISO 17034](#) and [certified to ISO 9001](#)
- Each lot of product passes rigorous Quality Control in our laboratory [accredited to ISO/IEC 17025](#)

ASTM Methods

VHG™ is proud to support your analytical testing by carefully monitoring and participating in the approval of ASTM Methods. More than 30,000 people from 150 countries create and update standards through ASTM International, one of the world’s most respected standards development organizations.

The high quality of ASTM International standards is driven by the expertise and judgment of members who represent industry, governments, academia, trade groups, consumers, and others. About 150 committees (with over 2,000 subcommittees) meet face-to-face and virtually to develop standards.



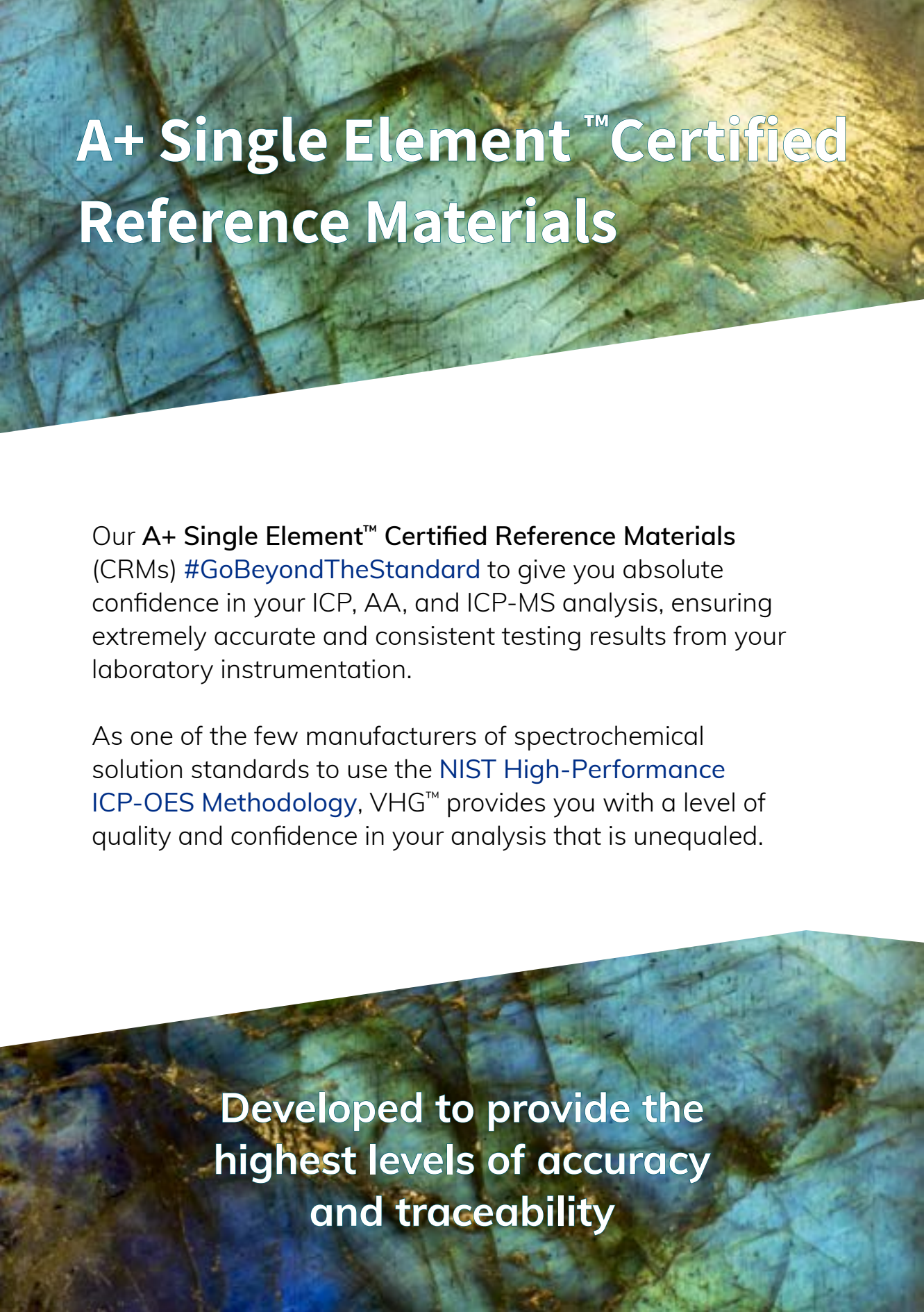
Methods supported by VHG™ Metallo-Organic Standards:

See the table below for the full list of ASTM Methods applicable to VHG™ Metallo-Organic Standards. Within the brochure itself, product tables are marked with the ASTM Methods they support for easy identification.

ASTM Methods supported by VHG™ Metallo-Organic Standards*	
D3231	Phosphorus in Gasoline
D4628	Analysis of Barium, Calcium, Magnesium, and Zinc in Unused Lubricating Oils by Atomic Absorption Spectrometry
D4927	Elemental Analysis of Lubricant and Additive Components — Barium, Calcium, Phosphorus, Sulfur, and Zinc by Wavelength-Dispersive X-Ray Fluorescence Spectroscopy
D4951	Determination of Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry
D5184	Determination of Aluminum and Silicon in Fuel Oils by Ashing, Fusion, Inductively Coupled Plasma Atomic Emission Spectrometry, and Atomic Absorption Spectrometry
D5600	Trace Metals in Petroleum Coke by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)
D5708	Determination of Nickel, Vanadium, and Iron in Crude Oils and Residual Fuels by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
D5863	Determination of Nickel, Vanadium, Iron, and Sodium in Crude Oils and Residual Fuels by Flame Atomic Absorption Spectrometry
D6443	Determination of Calcium, Chlorine, Copper, Magnesium, Phosphorus, Sulfur, and Zinc in Unused Lubricating Oils and Additives by Wavelength Dispersive X-Ray Fluorescence Spectrometry (Mathematical Correction Procedure)
D6481	Determination of Phosphorus, Sulfur, Calcium, and Zinc in Lubrication Oils by Energy Dispersive X-Ray Fluorescence Spectroscopy

**Some ASTM Methods may have been officially withdrawn by the organization, but are still supported by VHG™ due to customer practices and demand.*

ASTM International has been referenced here for customer benefit only, and notation of ASTM Methods throughout this brochure do not indicate approval or certification from ASTM International.

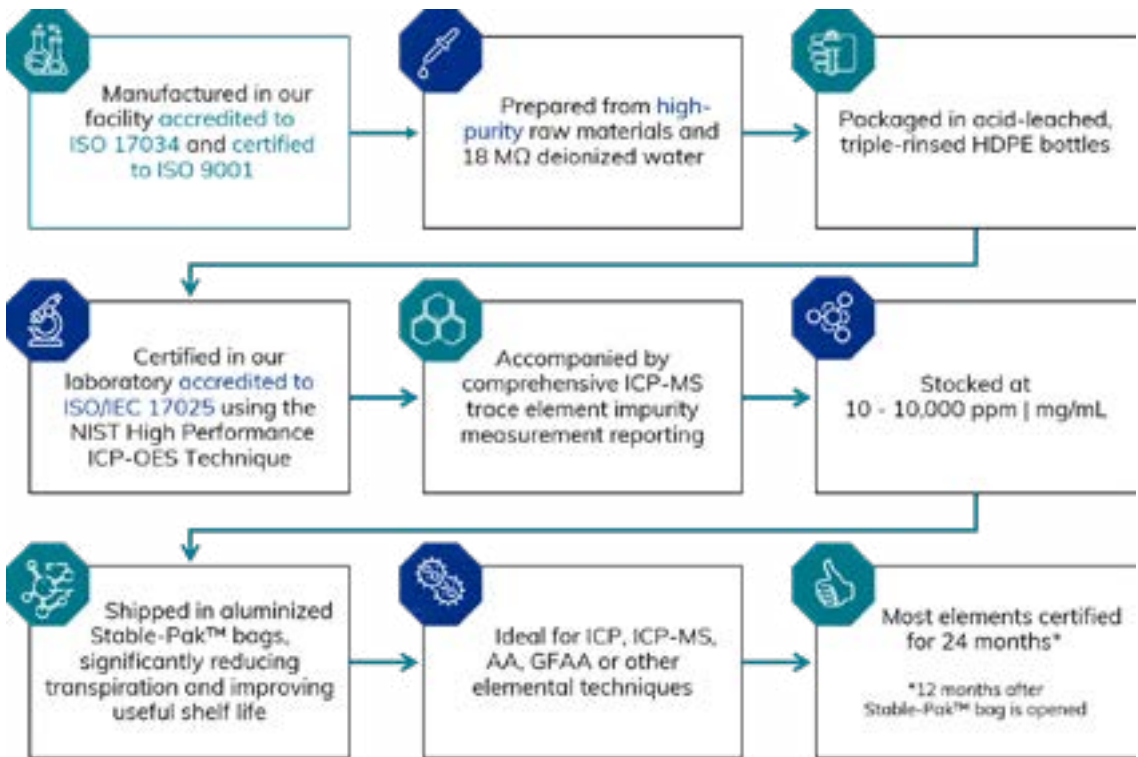


A+ Single Element™ Certified Reference Materials

Our A+ Single Element™ Certified Reference Materials (CRMs) [#GoBeyondTheStandard](#) to give you absolute confidence in your ICP, AA, and ICP-MS analysis, ensuring extremely accurate and consistent testing results from your laboratory instrumentation.

As one of the few manufacturers of spectrochemical solution standards to use the [NIST High-Performance ICP-OES Methodology](#), VHGT™ provides you with a level of quality and confidence in your analysis that is unequalled.

Developed to provide the
highest levels of accuracy
and traceability



Contact us today to get started!

Our experts are ready to discuss your lab's specific needs and get you started down the road to more accurate testing data.

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ICP Standards

for Additives, Contaminants & Wear Metals

A+ Single Element™ Petroleum Standards (50 g in 75 cSt Hydrocarbon Oil)*		
Element	Product No. (1,000 µg/g)	Product No. (5,000 µg/g)
Aluminum	VHG-OAL-1000-50G	VHG-OAL-5000-50G
Antimony	VHG-OSB-1000-50G	VHG-OSB-5000-50G
Arsenic	VHG-OAS-1000-50G	Please Inquire
Barium	VHG-OBA-1000-50G	VHG-OBA-5000-50G
Beryllium	VHG-OBE-1000-50G	Please Inquire
Bismuth	VHG-OBI-1000-50G	Please Inquire
Boron	VHG-OB-1000-50G	VHG-OB-5000-50G
Cadmium	VHG-OCD-1000-50G	VHG-OCD-5000-50G
Calcium	VHG-OCA-1000-50G	VHG-OCA-5000-50G
Cerium	VHG-OCE-1000-A-50G	VHG-OCE-5000-A-50G
Chromium	VHG-OCR-1000-A-50G	VHG-OCR-5000-A-50G
Cobalt	VHG-OCO-1000-A-50G	VHG-OCODN-5000-50G
Copper	VHG-OCU-1000-A-50G	VHG-OCU-5000-A-50G
Indium	VHG-OIN-1000-50G	VHG-OIN-5000-50G
Iron	VHG-OFE-1000-50G	VHG-OFE-5000-50G
Lanthanum	VHG-OLA-1000-A-50G	VHG-OLA-5000-50G
Lead	VHG-OPB-1000-50G	VHG-OPB-5000-50G
Lithium	VHG-OLI-1000-50G	VHG-OLI-5000-50G
Magnesium	VHG-OMG-1000-50G	VHG-OMG-5000-50G
Manganese	VHG-OMN-1000-A-50G	VHG-OMN-5000-A-50G
Mercury	VHG-OHG-1000-50G	Please Inquire
Molybdenum	VHG-OMO-1000-50G	VHG-OMO-5000-50G
Nickel	VHG-ONI-1000-A-50G	VHG-ONI-5000-A-50G
Phosphorus	VHG-OP-1000-50G	VHG-OP-5000-50G
Potassium	VHG-OK-1000-50G	VHG-OK-5000-50G
Scandium	VHG-OSC-1000-50G	** VHG-OSC-2000-50G
Selenium	VHG-OSE-1000-50G	Please Inquire
Silicon	VHG-OSI-1000-50G	VHG-OSI-5000-50G
Silver	VHG-OAG-5000-50G	Please Inquire
Sodium	VHG-ONA-1000-50G	VHG-ONA-5000-50G

***Scandium available in 2,000 concentration rather than 5,000*

Table continues on next page

ICP Standards for Additives, Contaminants & Wear Metals

Table continued from previous page

A+ Single Element™ Petroleum Standards (50 g in 75 cSt Hydrocarbon Oil) *		
Element	Product No. (1,000 µg/g)	Product No. (5,000 µg/g)
Strontium	VHG-OSR-1000-A-50G	VHG-OSR-5000-A-50G
Sulfur	VHG-OS-1000-50G	VHG-OS-5000-50G
Thallium	VHG-OTL-1000-50G	Please Inquire
Tin	VHG-OSN-1000-50G	VHG-OSN-5000-50G
Titanium	VHG-OTI-1000-50G	VHG-OTI-5000-50G
Tungsten	VHG-OW-1000-50G	VHG-OW-5000-50G
Vanadium	VHG-OV-1000-50G	VHG-OV-5000-50G
Yttrium	VHG-OY-1000-A-50G	VHG-OY-5000-A-50G
Zinc	VHG-OZN-1000-50G	VHG-OZN-5000-50G
Zirconium	VHG-OZR-1000-50G	VHG-OZR-5000-50G

*Additional sizes available for most elements (100, 200, 400, and 800 g) – please inquire



ICP Standards

for Additives, Contaminants & Wear Metals

V26 Wear Metal Standards (in 75 cSt Mineral Oil)

ASTM D4628, D4951

Elements: Ag, Al, B, Ba, Bi, Ca, Cd, Cr, Cu, Fe, In, Li, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sn, Ti, V, Zn

Concentration (µg/g)	Product No. (100 g)	Product No. (200 g)
10	VHG-V26-10-100G	VHG-V26-10-200G
30	VHG-V26-30-100G	VHG-V26-30-200G
50	VHG-V26-50-100G	VHG-V26-50-200G
100	VHG-V26-100-100G	VHG-V26-100-200G
300	VHG-V26-300-100G	VHG-V26-300-200G
500	VHG-V26-500-100G	VHG-V26-500-200G
900	VHG-V26-900-100G	VHG-V26-900-200G

V23 Wear Metal Standards (in 75 cSt Mineral Oil)

ASTM D4628, D4951

Elements: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sn, Ti, V, Zn

Concentration (µg/g)	Size (g)	Product No.
10	VHG-V23-10-100G	VHG-V23-10-200G
30	VHG-V23-30-100G	VHG-V23-30-200G
50	VHG-V23-50-100G	VHG-V23-50-200G
100	VHG-V23-100-100G	VHG-V23-100-200G
300	VHG-V23-300-100G	VHG-V23-300-200G
500	VHG-V23-500-100G	VHG-V23-500-200G
900	VHG-V23-900-100G	VHG-V23-900-200G

V21 + K Wear Metal Standards (in 75 cSt Mineral Oil)

ASTM D4628, D4951

Elements: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

Concentration (µg/g)	Product No. (100 g)	Product No. (200 g)
10	VHG-V21+K-10-100G	VHG-V21+K-10-200G
30	VHG-V21+K-30-100G	VHG-V21+K-30-200G
50	VHG-V21+K-50-100G	VHG-V21+K-50-200G
100	VHG-V21+K-100-100G	VHG-V21+K-100-200G
300	VHG-V21+K-300-100G	VHG-V21+K-300-200G
500	VHG-V21+K-500-100G	VHG-V21+K-500-200G
900	VHG-V21+K-900-100G	VHG-V21+K-900-200G

ICP Standards for Additives, Contaminants & Wear Metals

V21 Wear Metal Standards (in 75 cSt Hydrocarbon Oil)

ASTM D4628, D4951

Elements: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

Concentration (µg/g)	Product No. (100 g)	Product No. (200 g)
10	VHG-V21-10-100G	VHG-V21-10-200G
30	VHG-V21-30-100G	VHG-V21-30-200G
50	VHG-V21-50-100G	VHG-V21-50-200G
100	VHG-V21-100-100G	VHG-V21-100-200G
300	VHG-V21-300-100G	VHG-V21-300-200G
500	VHG-V21-500-100G	VHG-V21-500-200G
900	VHG-V21-900-100G	VHG-V21-900-200G

Metal Additives Standards (in 75 cSt Hydrocarbon Oil) *

ASTM D4628, D4951

Description	Product No. (100 g)	Product No. (200 g)	Product No. (400 g)
MA3: Ca @ 5,000; P, Zn @ 1,600 µg/g	VHG-MA3-100G	VHG-MA3-200G	VHG-MA3-400G
MA4: Ca @ 5,000; Mg, P, Zn @ 1,600 µg/g	VHG-MA4-100G	VHG-MA4-200G	VHG-MA4-400G
MA5: Ba, Ca, Mg, P, Zn @ 900 µg/g*	VHG-MA5-900-100G	VHG-MA5-900-200G	VHG-MA5-900-400G
MA5: Ba, Ca, Mg, P, Zn @ 1,000 µg/g *	VHG-MA5-1000-100G	VHG-MA5-1000-200G	VHG-MA5-1000-400G
MA5: Ba, Ca, Mg, P, Zn @ 3,000 µg/g*	VHG-MA5-3000-100G	VHG-MA5-3000-200G	VHG-MA5-3000-400G
MA5: Ba, Ca, Mg, P, Zn @ 5,000 µg/g*	VHG-MA5-5000-100G	VHG-MA5-5000-200G	
MA6: B, Ba, Ca, Mg, P, Zn @ 900 µg/g	VHG-MA6-900-100G	VHG-MA6-900-200G	VHG-MA6-900-400G

*50 g size also available

Multi-Element Wear Metal Standards – D3 (240 mL in Aviation Oil)

Elements: B, Mo, Zn

Concentration (µg/g)	Product No.
0	VHG-9150-00-179-5137
100	VHG-9150-01-238-0249

ICP Standards

for Additives, Contaminants & Wear Metals

Multi-Element Wear Metal Standards – D12 (240 mL in Aviation Oil)

Elements: Ag, Al, Cr, Cu, Fe, Mg, Na, Ni, Pb, Si, Sn, Ti

Concentration (µg/g)	Product No.
0	VHG-9150-00-179-5137
5	VHG-9150-01-307-3343
10	VHG-9150-00-179-5145
30	VHG-9150-00-179-5144
50	VHG-9150-00-179-5143
100	VHG-9150-00-179-5142
300	VHG-9150-00-179-5141

*50 g size also available

Multi-Element Wear Metal Standards – D19 (in Aviation Oil)

Elements: Ag, Al, B, Ba, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, Pb, Si, Sn, Ti, V, Zn

Concentration (µg/g)	Size	Product No.
0	240 mL	VHG-9150-00-179-5137
5	100 g	VHG-D19-5-100G
10	100 g	VHG-D19-10-100G
30	100 g	VHG-D19-30-100G
50	100 g	VHG-D19-50-100G
80	100 g	VHG-D19-80-100G
100	100 g	VHG-D19-100-100G
120	100 g	VHG-D19-120-100G
300	100 g	VHG-D19-300-100G
500	100 g	VHG-D19-500-100G
700	100 g	VHG-D19-700-100G
900	100 g	VHG-D19-900-100G
KIT*	Various	VHG-9150-01-355-1178

*KIT (VHG-9150-01-355-1178) includes: 2x VHG-9150-00-179-5137, 1x VHG-D19-5-100G, 1x VHG-D19-10-100G, 1x VHG-D19-30-100G, 1x VHG-D19-50-100G, 1x VHG-D19-80-100G, 2x VHG-D19-100-100G, 1x VHG-D19-120-100G, 1x VHG-D19-300-100G, 1x VHG-D19-500-100G, 1x VHG-D19-500-100G, 1x VHG-D19-700-100G and 1x VHG-D19-900-100G.

ICP Standards for Additives, Contaminants & Wear Metals

ASTM D5600, D5708, D5863, D4628, D4951

Internal Standards for Oil Analysis

Description	Matrix	Size (g)	Product No.
Cobalt Standard: Co @ 6 wt%	Mineral Spirits	100	VHG-OCO-6PIS-100G
Cobalt Standard: Co @ 6 wt%	Mineral Spirits	200	VHG-OCO-6PIS-200G
Cobalt Standard: Co @ 6 wt%	Mineral Spirits	400	VHG-OCO-6PIS-400G
Cobalt Standard: Co @ 5,000 µg/g	75 cSt Mineral Oil	200	VHG-OCODN-5000-200G
Cobalt Standard: Co @ 5,000 µg/g	75 cSt Mineral Oil	800	VHG-OCODN-5000-800G
Yttrium Standard: Y @ 2 wt%	75 cSt Mineral Oil	200	VHG-OYDN-2P-200G

Stabilizer for Wear Metal Standards

Description	Size (g)	Product No.
Stabilizer for Sulfur-Based Metallo-Organic Standards	50	VHG-STAB-50G

V-Solv™ ICP Solvent

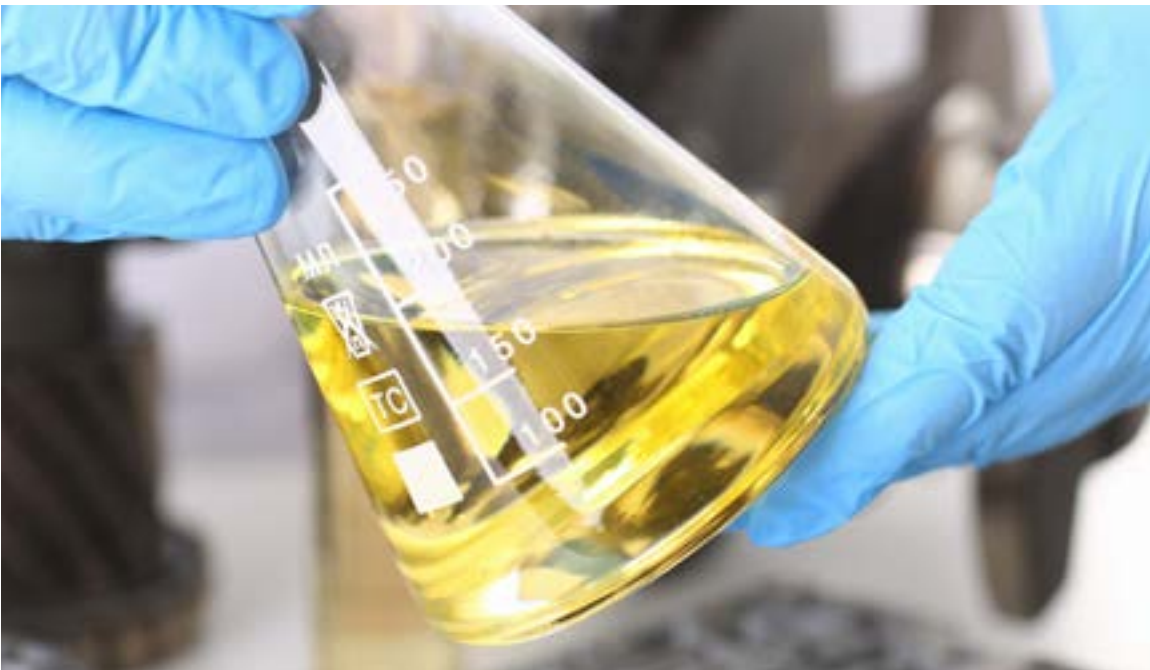
Description	Size	Product No.
V-Solv™ ICP Solvent	1 Gal	VHG-V-SOLV-1GAL
	1 Gal x 4*	VHG-V-SOLV-1GAL
	55 Gal	VHG-V-SOLV-55GAL
Pre-Mixed ICP Solvent + Cobalt: Co @ 40.0 µg/g in V-Solv™	1 Gal	VHG-V-SOLV+CO-1GAL
	1 Gal x 4*	V-SOLV+CO-1GAL
	5 Gal	V-SOLV+CO-5GAL
	55 Gal	V-SOLV+CO-55GAL

*Purchasing four 1 gallon V-Solv™ prompts automatic discount on webshop

XRF Standards

Standards for Sulfur & Metals in Crude & Residual Oils

Sulfur & Metals in Oil (100 mL in 20 cSt Mineral Oil)				
Set Product No: VHG-SMOIL-SET-12X100				
Elemental Concentrations				
Sulfur (wt%)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	Product No.
0.0	0	0	0	VHG-SMOIL1-100
2.5	400	100	250	VHG-SMOIL2-100
0.5	300	10	500	VHG-SMOIL3-100
1.0	0	80	350	VHG-SMOIL4-100
4.5	250	60	100	VHG-SMOIL5-100
4.0	350	30	200	VHG-SMOIL6-100
3.5	200	50	0	VHG-SMOIL7-100
5.5	50	40	400	VHG-SMOIL8-100
2.0	450	20	300	VHG-SMOIL9-100
1.5	500	5	150	VHG-SMOIL10-100
3.0	150	70	25	VHG-SMOIL11-100
5.0	100	0	50	VHG-SMOIL12-100



XRF Standards

Lubricating Oil Standards

Lubricating Oil Standards (100 mL in 20 cSt Mineral Oil)

Set Product No: **VHG-LOILSET-16X100**

ASTM D4927, D6481, D6443

Elemental Concentrations				
Sulfur (wt%)	Calcium (µg/g)	Phosphorus (wt%)	Zinc (wt%)	Product No.
0.000	0.000	0.000	0.000	VHG-LOIL1-100
0.050	0.600	0.005	0.080	VHG-LOIL2-100
0.300	0.000	0.020	0.175	VHG-LOIL3-100
0.150	0.500	0.030	0.070	VHG-LOIL4-100
0.100	0.300	0.060	0.130	VHG-LOIL5-100
0.175	0.400	0.200	0.050	VHG-LOIL6-100
0.075	0.200	0.080	0.120	VHG-LOIL7-100
0.125	0.250	0.050	0.000	VHG-LOIL8-100
0.400	0.350	0.040	0.110	VHG-LOIL9-100
0.500	0.075	0.225	0.150	VHG-LOIL10-100
0.200	0.050	0.150	0.200	VHG-LOIL11-100
0.550	0.005	0.000	0.140	VHG-LOIL12-100
0.450	0.100	0.010	0.250	VHG-LOIL13-100
0.600	0.010	0.125	0.060	VHG-LOIL14-100
0.250	0.150	0.100	0.090	VHG-LOIL15-100
0.350	0.025	0.175	0.100	VHG-LOIL16-100



XRF Standards

Lubricating Oil Calibration Set (50 mL in Lubricating Oil)								ASTM D4927
Set Product No: VHG-LUBESET-23X50								
Elemental Concentrations (µg/g)								
Ba	Ca	Cl	Mn	Mo	P	S	Si	Zn
10	10	1,000	400	250	2,000	5,000	400	50
200	5,000	0	350	100	1	10,000	380	250
30	0	400	100	0	1,750	0	25	750
0	4,500	2,000	0	200	1,500	500	340	1,250
50	0	200	300	250	20	1,250	0	1,750
30	0	1,800	0	30	100	500	0	2,250
100	3,500	0	250	150	1	12,500	300	10
140	20	10	800	0	1,250	0	450	20
300	3,000	60	120	500	3	0	210	0
0	2,000	1,600	20	300	1,000	15,000	400	50
0	2,500	10	50	20	1,750	22,500	225	0
180	500	100	0	10	0	17,500	220	100
400	2,000	600	30	150	750	0	180	0
220	2	800	0	50	0	10,000	140	2
340	1,500	100	2	0	10	1,250	100	1,200
260	4,000	4	700	0	500	0	250	120
0	1,000	1,800	0	350	50	20,000	25	2,500
380	500	2	400	5	250	0	10	2,000
300	50	1,000	0	400	2,250	2,500	0	1,500
0	250	1,000	500	0	1,250	17,500	0	1,000
0	100	1,200	600	0	2,500	25,000	0	500
340	1	1,400	10	450	10	22,500	0	125
0	0	0	0	0	0	0	0	0

XRF Standards

ASTM D4927

Multi-Element Calibration Set (50 g in cSt Hydrocarbon Oil)

Set Product No: **VHG-WRMTLSET-17X50G**

Element	Concentration Range (µg/g)
Aluminum (Al)	0-500
Antimony (Sb)	0-500
Barium (Ba)	0-2,000
Cadmium (Cd)	0-5,000
Calcium (Ca)	0-500
Chromium (Cr)	0-500
Copper (Cu)	0-500
Iron (Fe)	0-500
Lead (Pb)	0-500
Magnesium (Mg)	0-3,000
Manganese (Mn)	0-500
Molybdenum (Mo)	0-500
Nickel (Ni)	0-500
Phosphorous (P)	0-500
Potassium (K)	0-2,000
Silicon (Si)	0-500
Silver (Ag)	0-500
Sodium (Na)	0-500
Tin (Sn)	0-500
Titanium (Ti)	0-500
Vanadium (V)	0-500
Zinc (Zn)	0-2,000



XRF Standards

Multi-Element Calibration Set

Multi-Element Calibration Set								
Element	Standard #							
	1	2	3	4	5	6	7	8
Aluminum	0	300	0	500	100	10	0	20
Antimony	100	0	400	200	50	0	0	40
Barium	0	0	300	30	500	1,500	1,000	50
Cadmium	0	30	0	0	200	0	50	100
Calcium	5,000	500	3,000	50	0	1,000	700	100
Chromium	0	500	0	0	0	50	300	400
Copper	300	0	40	0	20	0	10	400
Iron	20	0	500	400	0	200	0	30
Lead	200	10	20	40	30	0	500	50
Magnesium	50	10	0	500	30	0	1,250	2,000
Manganese	0	0	10	50	0	300	100	500
Molybdenum	0	0	0	30	0	50	0	40
Nickel	10	40	100	20	300	500	0	0
Phosphorous	0	1,000	0	700	10	100	1,500	0
Potassium	0	0	0	50	0	40	30	10
Silicon	400	50	300	0	500	100	0	20
Silver	0	0	0	0	10	20	200	300
Sodium	40	100	0	0	0	30	400	0
Tin	50	20	30	300	0	400	0	0
Titanium	500	400	200	0	40	0	20	0
Vanadium	30	0	50	100	0	0	40	200
Zinc	500	700	10	100	300	1,250	50	0

XRF Standards

Set Product No: VHG-WRMTLSET-17x50G									
	Standard #								
	9	10	11	12	13	14	15	16	17
	0	50	0	200	30	0	400	40	0
	30	10	20	300	0	500	0	0	0
	1,250	0	2,000	10	700	0	100	0	0
	300	20	10	40	400	0	500	0	0
	2,000	10	30	300	0	1,500	4,000	0	0
	20	200	100	0	40	30	10	0	0
	0	500	0	0	200	50	100	30	0
	100	0	300	0	10	40	50	0	0
	300	0	0	100	0	400	0	0	0
	1,500	100	0	700	3,000	300	0	1,000	0
	400	0	40	20	30	0	0	200	0
	10	400	200	500	300	100	0	20	0
	0	30	0	400	50	0	200	0	0
	50	2,000	300	1,250	0	0	500	30	0
	0	300	500	200	100	0	20	400	0
	40	0	0	0	0	200	30	10	0
	50	100	30	40	400	500	0	0	0
	200	0	0	10	500	20	300	50	0
	0	10	100	200	0	0	40	500	0
	0	50	10	30	0	300	0	100	0
	500	0	0	400	20	10	0	300	0
	0	0	1,000	2,000	1,500	30	0	0	0

Proficiency Testing

Proficiency Testing			
Description	Matrix	Size	Product No.
PTP Sample for Elemental Analysis of Oils	75 cSt Mineral Oil	25 g	VHG-VTPMO-25G



Matrix Oils & Solvents

V-Solv™ ICP Solvent			
Description	Matrix	Size	Product No.
Pre-Mixed ICP Solvent + Cobalt: Co @ 40.0 µg/g in V-Solv™	V-Solv™ ICP Solvent	1 Gal	VHG-V-SOLV+CO-1GAL
		1 Gal x4*	V-SOLV+CO-1GAL
		5 Gal	V-SOLV+CO-5GAL
		55 Gal	V-SOLV+CO-55GAL
V-Solv™ ICP Solvent	V-Solv™ ICP Solvent	1 Gal	VHG-V-SOLV-1GAL
		1 Gal x4*	VHG-V-SOLV-1GAL
		55 Gal	VHG-V-SOLV-55GAL

*Purchasing four 1 gallon V-Solv™ prompts automatic discount on webshop

Matrix Oil		
Description	Size	Product No.
75 cSt Mineral Oil Blank (trace metals reported to <0.1 ppm)	500 mL	VHG-OIL-75-500
	1 Gal	VHG-OIL-75-1GAL
75 cSt Mineral Oil Blank (trace metals & sulfur reported)	500 mL	VHG-OIL-MIN-500
	0.5 Gal	VHG-OIL-MIN-1/2GAL
20 cSt Mineral Oil Blank (trace metals reported)	500 mL	VHG-OIL-20-500
	1 Gal	VHG-OIL-20-1GAL
20 cSt Mineral Oil Blank (trace metals & sulfur reported)	500 mL	VHG-OIL-20MIN-500
	0.5 Gal	VHG-OIL-20MIN-1/2GAL



Consumables

Instrument Consumables		
Description	Pack Size	Product No.
Polypropylene Sample Tubes, Round Bottom, 17 x 100 mm (~15 mL)	1,200	VHG-FPSC1-MP
Polypropylene Sample Tubes, Round Bottom, 13 x 100 mm (~8 mL)	1,200	VHG-FPSC4-MP
Plug/cap to fit VHG-FPSC4-MP (13 x 100 mm tube)	1,200	VHG-FPSC4-MP-PLUG
Plug/cap to fit VHG-FPSC1-MP (17 x 100 mm tube)	1,200	VHG-FPSC1-MP-PLUG
Polypropylene Sample Tubes for Viscometer Autosamplers, Cylindrical Bottom, 2.3 x 6 cm (15 mL)	1,000	VHG-FVISC-MPA
Titration Beakers for use with Mettler (100 mL)	450	VHG-FSB1-MP
Titration Beakers for use with Metrohm (120 mL)	300	VHG-FSB2-MP
Black/Black Solvent Flex Peri-Pump Tubing, 2-Bridge, 0.76 mm (0.03 in)	12	VHG-D180209



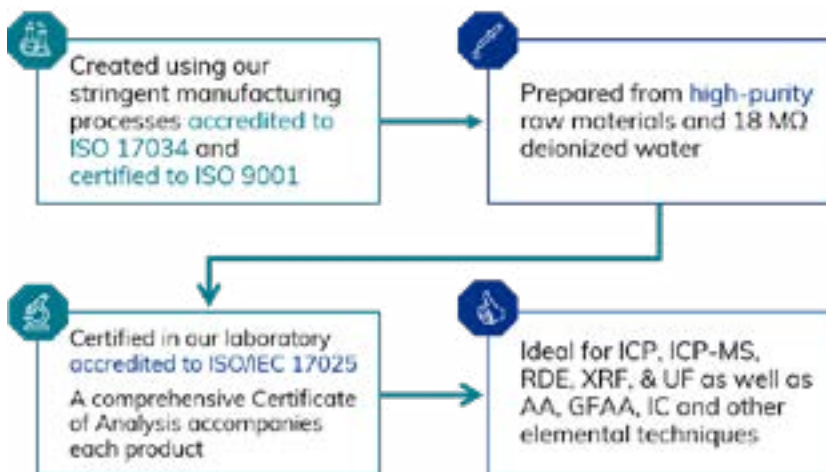


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