

Petrochemical Standards

Certified Petroleum Reference Materials (CPRM)



ASTM Methods for Organometallics, Aromatics, Olefins, Saturates, Sulfur, Nitrogen & Oxygenates in Refinery Products

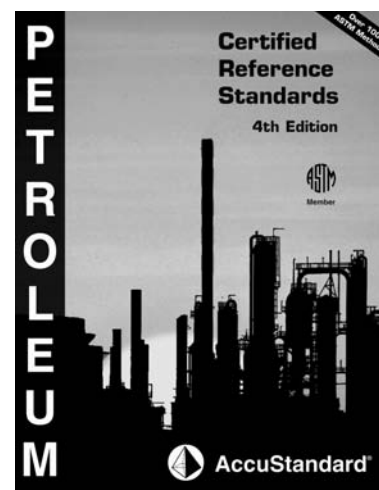
Table of Contents	page
Wear Metals	46-52
Organometallic Wear Metals Single and Multi-Element	46
Organometallic Single Element Concentrates & Stock Solutions <i>Sulfur Free</i>	47
Stabilization Solutions	47, 52
Wear Metals Multi-Element <i>Sulfur Free</i>	48
Sulfur & Metals in Oil	49
ISO / CD 14597 Vanadium & Nickel in Oil	49
Lubricating Oil Standards	50-52
Metal Working Fluids	52
Sulfur Standards	53-55
Sulfur in Mineral Oil	53
Sulfur in Diesel Fuel	53
Sulfur in Kerosene, Refinery Oils & Aromatics	54
Sulfur in Isooctane for Gasoline Analysis (D-2622, D-4294, D-3120, D-3246)	55
Petroleum QC Standards	56
ASTM Methods	
D-3230 Salts in Crude Oil	57
D-3231 Phosphorus in Gasoline	57
D-3237 Lead in Gasoline	57
D-3605 Trace Metals in Gas Turbine Fuels	57
D-3610 Cobalt Oxide Standard	57
D-3831 Manganese in Gasoline	57
D-4628 Barium, Calcium, Magnesium & Zinc in unused Lubricating Oil	57
D-4629 Nitrogen in Petroleum Hydrocarbons	58
D-4927 Wear Metals in Lubricating Oil	59
D-4929 Organic Chlorides in Crude Oil	59
D-4951 Additive Elements in Lubricating Oil	59
D-5056 Trace Metals in Petroleum Coke	59
D-5059 Lead in Gasoline	60
D-5184 Aluminum & Silicon in Fuel Oils	60
D-5185 Additive Elements, Wear Metals & Contaminants in used Lubricating Oils	60
D-5453 Sulfur in Light Hydrocarbons, Motor Fuels & Oils	61
D-5600 Trace Metals in Petroleum Coke	61
D-5708 Nickel, Vanadium & Iron in Crude Oils & Residual Fuels	62
D-5762 Nitrogen in Petroleum & Petroleum Products	63
D-5863 Nickel, Vanadium, Iron & Sodium in Crude Oils & Residual Fuels	63

Looking for a method number you can't find in the Index or Table of Contents?

There are more on our Website.



For our complete line of standards for over 100 ASTM Methods, request our Petroleum catalog.





Traceable Organometallic Standards for AA, ICP, DCP & XRF Analysis

These Standards were formulated for the analysis of metals in oils and other organic matrices. These Standards and curves provide a convenient way to analyze for metals (wear metals, additives and contaminants) in lubricating oils, gasolines, residual oils, crude oils, turbine fuels and environmental samples. All standards undergo rigorous quality assurance checks. Major constituents in the final Standard are typically analyzed by both plasma emission and rotrode techniques. Organometallic Standards listed on this page may contain sulfur which can be introduced by possible sulfonate starting materials used to formulate the actual organometallic standard. We developed a Premium Organometallic line for preferring to have organometallic standards with <1 ppm sulfur or phosphorus (see Table of Contents).

Organometallic

21 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	4 oz	WM-21-1X-4
	8 oz	WM-21-1X-8
30	4 oz	WM-21-3X-4
	8 oz	WM-21-3X-8
50	4 oz	WM-21-5X-4
	8 oz	WM-21-5X-8
100	4 oz	WM-21-10X-4
	8 oz	WM-21-10X-8
300	4 oz	WM-21-30X-4
	8 oz	WM-21-30X-8
500	4 oz	WM-21-50X-4
	8 oz	WM-21-50X-8
900	4 oz	WM-21-90X-4
	8 oz	WM-21-90X-8

Each Wear Metal Standard contains the below list of 21 elements in hydrocarbon oil at the stated concentration.

Ag (Silver)	Cu (Copper)	P (Phosphorus)
Al (Aluminum)	Fe (Iron)	Pb (Lead)
B (Boron)	Mg (Magnesium)	Si (Silicon)
Ba (Barium)	Mn (Manganese)	Sn (Tin)
Ca (Calcium)	Mo (Molybdenum)	Ti (Titanium)
Cd (Cadmium)	Na (Sodium)	V (Vanadium)
Cr (Chromium)	Ni (Nickel)	Zn (Zinc)

12 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	4 oz	WM-12-1X-4
	8 oz	WM-12-1X-8
30	4 oz	WM-12-3X-4
	8 oz	WM-12-3X-8
50	4 oz	WM-12-5X-4
	8 oz	WM-12-5X-8
100	4 oz	WM-12-10X-4
	8 oz	WM-12-10X-8
300	4 oz	WM-12-30X-4
	8 oz	WM-12-30X-8
500	4 oz	WM-12-50X-4
	8 oz	WM-12-50X-8
900	4 oz	WM-12-90X-4
	8 oz	WM-12-90X-8

Each Wear Metal Standard contains the below list of 12 elements in hydrocarbon oil at the stated concentration.

Ag (Silver)	Na (Sodium)
Al (Aluminum)	Ni (Nickel)
Cr (Chromium)	Pb (Lead)
Cu (Copper)	Si (Silicon)
Fe (Iron)	Sn (Tin)
Mg (Magnesium)	Ti (Titanium)

- Single & Multi Element Standards
- Prepared Calibration Curves
- Formulated from Ultra High Purity Organometallic Starting materials & matrices
- Certificate of Analysis

These products do not require Hazardous Shipping charges at this time.

Single Element Wear Metals

Organometallic ICP/XRF Element	Unit	1000 µg/g in 20 cSt base oil Cat. No.	5000 µg/g in 75 cSt base oil Cat. No.
Aluminum	2 oz	WM-20CST-01	WM-75CST-01-5X
Antimony	2 oz	WM-20CST-02	WM-75CST-02-5X
Arsenic	2 oz	WM-20CST-03	
Barium	2 oz	WM-20CST-04	WM-75CST-04-5X
Beryllium NEW	2 oz	WM-20CST-05	
Bismuth	2 oz	WM-20CST-06	WM-75CST-06-5X
Boron	2 oz	WM-20CST-07	WM-75CST-07-5X
Cadmium	2 oz	WM-20CST-08	WM-75CST-08-5X
Calcium	2 oz	WM-20CST-09	WM-75CST-09-5X
Chromium	2 oz	WM-20CST-13	WM-75CST-13-5X
Cobalt NEW	2 oz	WM-20CST-14	WM-75CST-14-5X
Copper	2 oz	WM-20CST-15	WM-75CST-15-5X
Iron	2 oz	WM-75CST-27 **	WM-75CST-27-5X
Lanthanum NEW	2 oz	WM-20CST-28	
Lead	2 oz	WM-20CST-29	WM-75CST-29-5X
Lithium	2 oz	WM-20CST-30	WM-75CST-30-5X
Magnesium	2 oz	WM-20CST-32	WM-75CST-32-5X
Manganese	2 oz	WM-20CST-33	WM-75CST-33-5X
Mercury	2 oz	WM-20CST-34	
Molybdenum	2 oz	WM-20CST-35	WM-75CST-35-5X
Nickel	2 oz	WM-20CST-37	WM-75CST-37-5X
Phosphorous	2 oz	WM-20CST-41	WM-75CST-41-5X
Potassium	2 oz	WM-20CST-43	WM-75CST-43-5X
Scandium	2 oz	WM-20CST-50	
Selenium NEW	2 oz	WM-20CST-51	WM-75CST-51-5X
Silicon	2 oz	WM-20CST-52	WM-75CST-52-5X
Silver	2 oz	WM-20CST-53	WM-75CST-53-5X
Sodium	2 oz	WM-20CST-54	WM-75CST-54-5X
Strontium	2 oz	WM-20CST-55	
Sulfur NEW	2 oz	WM-20CST-56	WM-75CST-56-5X
Thallium	2 oz	WM-20CST-60	
Tin	2 oz	WM-20CST-63	WM-75CST-63-5X
Titanium	2 oz	WM-20CST-64	WM-75CST-64-5X
Vanadium	2 oz	WM-75CST-67 **	WM-75CST-67-5X
Yttrium NEW	2 oz	WM-20CST-69	WM-75CST-69-5X
Zinc	2 oz	WM-20CST-70	WM-75CST-70-5X
Zirconium	2 oz	WM-20CST-71	WM-75CST-71-5X

Matrix Oil and Stabilizer

Cat. No.	Unit
MOSOL-75	75 cSt Oil
MOSOL-20	20 cSt Oil

Used to improve the stability of Organometallic Standards when diluting into solvents such as Kerosene.

Stabilizer

WM-STAB	1 x 2 oz
---------	----------

Metals Additives Standard

MA-900-4	4 oz
MA-900-8	8 oz
Ba, Ca, Mg, P and Zn at 900 µg/g each in Hydrocarbon oil	

** in 75cSt Oil for better stability

Organometallic Standards

Premium Sulfur-Free



These highly concentrated stabilized solutions can be used for customer specific formulations of additive elements in lubricating oils, iron, nickel and vanadium in residual oil, and wear metals in oils. These organometallic solutions can also be used to prepare single element or multi-element standards for plasma emission (ICP or DCP), rotating disk (rotrode), or atomic absorption spectroscopy (AA). The starting materials are PURE REAGENTS and have been certified against NIST SRM's whenever available. **THEY DO NOT CONTAIN PHOSPHORUS OR SULFUR.**

- Highly Concentrated Liquid Organometallic Standards
- Stabilized
- Sulfur/Phosphorous free (< 1 ppm)
- Ready for Use

Organometallic Single Element Concentrates

Element	Conc. (Wt. %)	Cat. No. (25 grams)	Cat. No. (50 grams)
Aluminum	3	WM-NMS-01-30X-25G	WM-NMS-01-30X-50G
	NEW	WM-NMS-02-20X-25G	WM-NMS-02-20X-50G
Barium	12.5	WM-NMS-04-125X-25G	WM-NMS-04-125X-50G
Boron	2.5	WM-NMS-07-25X-25G	WM-NMS-07-25X-50G
Cadmium	10	WM-NMS-08-100X-25G	WM-NMS-08-100X-50G
Calcium	5	WM-NMS-09-50X-25G	WM-NMS-09-50X-50G
	NEW	WM-NMS-11-50X-25G	WM-NMS-11-50X-50G
Chromium	3.5	WM-NMS-13-35X-25G	WM-NMS-13-35X-50G
Cobalt	7.5	WM-NMS-14-75X-25G	WM-NMS-14-75X-50G
Copper	6	WM-NMS-15-60X-25G	WM-NMS-15-60X-50G
Iron	4	WM-NMS-27-40X-25G	WM-NMS-27-40X-50G
Lead	20	WM-NMS-29-200X-25G	WM-NMS-29-200X-50G
	NEW	WM-NMS-30-15X-25G	WM-NMS-30-15X-50G
Magnesium	3	WM-NMS-32-30X-25G	WM-NMS-32-30X-50G
Manganese	6	WM-NMS-33-60X-25G	WM-NMS-33-60X-50G
Molybdenum	5	WM-NMS-35-50X-25G	WM-NMS-35-50X-50G
Nickel	5	WM-NMS-37-50X-25G	WM-NMS-37-50X-50G
Phosphorus	5	WM-NMS-41-50X-25G	WM-NMS-41-50X-50G
	NEW	WM-NMS-43-75X-25G	WM-NMS-43-75X-50G
Praseodymium	3	WM-NMS-44-30X-25G	WM-NMS-44-30X-50G
Selenium	3.5	WM-NMS-51-35X-25G	WM-NMS-51-35X-50G
	NEW	WM-NMS-52-75X-25G	WM-NMS-52-75X-50G
	NEW	WM-NMS-54-25X-25G	WM-NMS-54-25X-50G
Strontium	10	WM-NMS-55-100X-25G	WM-NMS-55-100X-50G
Thallium	5	WM-NMS-60-50X-25G	WM-NMS-60-50X-50G
	NEW	WM-NMS-63-75X-25G	WM-NMS-63-75X-50G
Titanium	5	WM-NMS-64-50X-25G	WM-NMS-64-50X-50G
Vanadium	4	WM-NMS-67-40X-25G	WM-NMS-67-40X-50G
	NEW	WM-NMS-69-25X-25G	WM-NMS-69-25X-50G
Zinc	6	WM-NMS-70-60X-25G	WM-NMS-70-60X-50G
Zirconium	5	WM-NMS-71-50X-25G	WM-NMS-71-50X-50G

These products do not require Hazardous Shipping charges at this time.

Premium
Sulfur-Free
Sulfur below
detection limits

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards. Contact Tech Service for additional information.

Stabilizer Solution A

ASTM-P-0122-0.5 50 mL
ASTM-P-0122-1 100 mL

Stabilizer Solution B

ASTM-P-0123-0.5 50 mL
ASTM-P-0123-1 100 mL

Stabilizer Solution C

ASTM-P-0124-0.5 50 mL
ASTM-P-0124-1 100 mL

Stabilizer Solution D

ASTM-P-0125-0.5 50 mL
ASTM-P-0125-1 100 mL

Contains
No Metallic Sulfonates

Organometallic Single Element Stock Standards

Sulfur free Element	@ 1000 µg/g Cat. No.	50 mL	@ 5000 µg/g Cat. No.	50 mL
Aluminum	WM-NMS-01		WM-NMS-01-5X	
Antimony	WM-NMS-02		WM-NMS-02-5X	
	NEW		WM-NMS-03-5X	
Barium	WM-NMS-04		WM-NMS-04-5X	
	NEW		WM-NMS-05-5X	
Cadmium	WM-NMS-08		WM-NMS-08-5X	
Calcium	WM-NMS-09		WM-NMS-09-5X	
Chromium	WM-NMS-13		WM-NMS-13-5X	
Cobalt	WM-NMS-14		WM-NMS-14-5X	
Copper	WM-NMS-15		WM-NMS-15-5X	
	NEW		WM-NMS-20-5X	
	NEW		-----	----
Iron	WM-NMS-27		WM-NMS-27-5X	
Lead	WM-NMS-29		WM-NMS-29-5X	
	NEW		WM-NMS-30-5X	
Magnesium	WM-NMS-32		WM-NMS-32-5X	
Manganese	WM-NMS-33		WM-NMS-33-5X	
	NEW		WM-NMS-34-5X	
Molybdenum	WM-NMS-35		WM-NMS-35-5X	
Nickel	WM-NMS-37		WM-NMS-37-5X	
Phosphorous	WM-NMS-41		WM-NMS-41-5X	
Potassium	WM-NMS-43		WM-NMS-43-5X	
Selenium	WM-NMS-51		WM-NMS-51-5X	
Silicon	WM-NMS-52		WM-NMS-52-5X	
	NEW		WM-NMS-53-5X	
Sodium	WM-NMS-54		WM-NMS-54-5X	
Strontium	WM-NMS-55		WM-NMS-55-5X	
Thallium	WM-NMS-60		WM-NMS-60-5X	
Tin	NEW WM-NMS-63		WM-NMS-63-5X	
Titanium	WM-NMS-64		WM-NMS-64-5X	
Vanadium	WM-NMS-67		WM-NMS-67-5X	
Yttrium	WM-NMS-68		WM-NMS-68-5X	
Zinc	WM-NMS-70		WM-NMS-70-5X	
Zirconium	WM-NMS-71		WM-NMS-71-5X	

Technical Note

These standards are **sulfur free** (below detection limits) **organometallic standards** for X-ray Fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (rotrode), or atomic absorption (AA). They are stabilized for blending together with other Analytes to prepare multi-element standards.

Organometallic



Organometallic Standards

No Metallic Sulfonates

Organometallic

Wear Metals Multi-Element

11 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	100 mL	WM-11-NMS-1X-1
30	100 mL	WM-11-NMS-3X-1
50	100 mL	WM-11-NMS-5X-1
100	100 mL	WM-11-NMS-10X-1
300	100 mL	WM-11-NMS-30X-1
500	100 mL	WM-11-NMS-50X-1
900	100 mL	WM-11-NMS-90X-1

WM-11-NMS-1-SET
set of above 7 x 100 mL

Each Wear Metal Standard contains 11 elements in hydrocarbon oil at the stated concentration.

Al (Aluminum)	Ni (Nickel)
Cr (Chromium)	Pb (Lead)
Cu (Copper)	Si (Silicon)
Fe (Iron)	Sn (Tin)
Mg (Magnesium)	Ti (Titanium)
Na (Sodium)	

12 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	100 mL	WM-12-NMS-1X-1
30	100 mL	WM-12-NMS-3X-1
50	100 mL	WM-12-NMS-5X-1
100	100 mL	WM-12-NMS-10X-1
300	100 mL	WM-12-NMS-30X-1
500	100 mL	WM-12-NMS-50X-1

WM-12-NMS-1-SET
set of above 6 x 100 mL

Each Wear Metal Standard contains 12 elements in hydrocarbon oil at the stated concentration.

Ag (Silver)	Na (Sodium)
Al (Aluminum)	Ni (Nickel)
Cr (Chromium)	Pb (Lead)
Cu (Copper)	Si (Silicon)
Fe (Iron)	Sn (Tin)
Mg (Magnesium)	Ti (Titanium)

Contains
No Metallic Sulfonates

Premium
Sulfur-Free

Sulfur below
detection limits

20 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	100 mL	WM-20-NMS-1X-1
30	100 mL	WM-20-NMS-3X-1
50	100 mL	WM-20-NMS-5X-1
100	100 mL	WM-20-NMS-10X-1
300	100 mL	WM-20-NMS-30X-1
500	100 mL	WM-20-NMS-50X-1
900	100 mL	WM-20-NMS-90X-1

WM-20-NMS-1-SET
set of above 7 x 100 mL

Each Wear Metal Standard contains 20 elements in hydrocarbon oil at the stated concentration.

Al (Aluminum)	Mo (Molybdenum)
B (Boron)	Na (Sodium)
Ba (Barium)	Ni (Nickel)
Ca (Calcium)	P (Phosphorus)
Cd (Cadmium)	Pb (Lead)
Cr (Chromium)	Si (Silicon)
Cu (Copper)	Sn (Tin)
Fe (Iron)	Ti (Titanium)
Mg (Magnesium)	V (Vanadium)
Mn (Manganese)	Zn (Zinc)

21 Wear Metal Multi-Element

Conc.(µg/g)	Unit	Cat. No.
10	100 mL	WM-21-NMS-1X-1
30	100 mL	WM-21-NMS-3X-1
50	100 mL	WM-21-NMS-5X-1
100	100 mL	WM-21-NMS-10X-1
300	100 mL	WM-21-NMS-30X-1
500	100 mL	WM-21-NMS-50X-1

WM-21-NMS-1-SET
set of above 6 x 100 mL

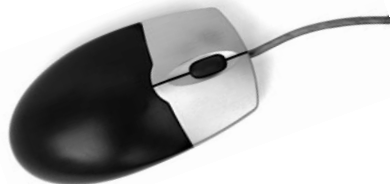
Each Wear Metal Standard contains 21 elements in hydrocarbon oil at the stated concentration.

Ag (Silver)	Mo (Molybdenum)
Al (Aluminum)	Na (Sodium)
B (Boron)	Ni (Nickel)
Ba (Barium)	P (Phosphorus)
Ca (Calcium)	Pb (Lead)
Cd (Cadmium)	Si (Silicon)
Cr (Chromium)	Sn (Tin)
Cu (Copper)	Ti (Titanium)
Fe (Iron)	V (Vanadium)
Mg (Magnesium)	Zn (Zinc)
Mn (Manganese)	



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This is the **easier** way to get
Chemical Reference Standards

These products do not require Hazardous Shipping charges at this time.

Traceable Organometallic Standards for AA, ICP, DCP & XRF Analysis



Organometallic

Sulfur and Metals in Oil

Sulfur and Metals in Mineral Oil

ASTM-P-0100-SET				12 x 100 mL
Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0100-01	0.00	0	0	
ASTM-P-0100-02	0.50	10	500	
ASTM-P-0100-03	1.00	100	25	
ASTM-P-0100-04	1.50	80	250	
ASTM-P-0100-05	2.00	40	100	
ASTM-P-0100-06	2.50	5	400	
ASTM-P-0100-07	3.00	60	300	
ASTM-P-0100-08	3.50	0	200	
ASTM-P-0100-09	4.00	100	0	
ASTM-P-0100-10	4.50	50	250	
ASTM-P-0100-11	5.00	20	500	
ASTM-P-0100-12	5.50	100	50	

Sulfur and Metals in Residual Fuel Oil

ASTM-P-0101-SET				12 x 100 mL
Cat. No.	Sulfur (Wt. %)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0101-01	0.00	0	0	
ASTM-P-0101-02	0.50	10	500	
ASTM-P-0101-03	1.00	100	25	
ASTM-P-0101-04	1.50	80	250	
ASTM-P-0101-05	2.00	40	100	
ASTM-P-0101-06	2.50	5	400	
ASTM-P-0101-07	3.00	60	300	
ASTM-P-0101-08	3.50	0	200	
ASTM-P-0101-09	4.00	100	0	
ASTM-P-0101-10	4.50	50	250	
ASTM-P-0101-11	5.00	20	500	
ASTM-P-0101-12	5.50	100	50	

Sulfur and Metals in Mineral Oil

Designed for ASTM D-5708-95a

ASTM-P-0102-SET					12 x 100 mL
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0102-01	0.00	0	0	0	
ASTM-P-0102-02	0.50	300	10	500	
ASTM-P-0102-03	1.00	500	100	25	
ASTM-P-0102-04	-----	100	80	250	
ASTM-P-0102-05	2.00	200	40	100	
ASTM-P-0102-06	2.50	400	5	400	
ASTM-P-0102-07	3.00	0	60	300	
ASTM-P-0102-08	3.50	500	0	200	
ASTM-P-0102-09	-----	100	100	0	
ASTM-P-0102-10	4.50	300	50	250	
ASTM-P-0102-11	5.00	200	20	500	
ASTM-P-0102-12	5.50	50	100	50	

Sulfur and Metals in Residual Fuel Oil

Designed for ASTM D-5708-95a

ASTM-P-0103-SET					12 x 100 mL
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0103-01	0.00	0	0	0	
ASTM-P-0103-02	0.50	300	10	500	
ASTM-P-0103-03	1.00	500	100	25	
ASTM-P-0103-04	-----	100	80	250	
ASTM-P-0103-05	2.00	200	40	100	
ASTM-P-0103-06	2.50	400	5	400	
ASTM-P-0103-07	3.00	0	60	300	
ASTM-P-0103-08	3.50	500	0	200	
ASTM-P-0103-09	-----	100	100	0	
ASTM-P-0103-10	4.50	300	50	250	
ASTM-P-0103-11	5.00	200	20	500	
ASTM-P-0103-12	5.50	50	100	50	

ISO/CD 14597 Vanadium and Nickel Standards with Manganese (Internal Standard)

Vanadium Standards - Low Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0104-SET			9 x 100 mL
Cat. No.	Vanadium Conc. (Wt.%)		100 mL
ASTM-P-0104-01	0.0005		
ASTM-P-0104-02	0.0025		
ASTM-P-0104-03	0.0050		
ASTM-P-0104-04	0.0075		
ASTM-P-0104-05	0.0100		
ASTM-P-0104-06	0.0125		
ASTM-P-0104-07	0.0150		
ASTM-P-0104-08	0.0175		
ASTM-P-0104-09	0.0200		

Vanadium Standards - High Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0105-SET			7 x 100 mL
Cat. No.	Vanadium Conc. (Wt.%)		100 mL
ASTM-P-0105-01	0.0000		
ASTM-P-0105-02	0.0300		
ASTM-P-0105-03	0.0400		
ASTM-P-0105-04	0.0500		
ASTM-P-0105-05	0.0600		
ASTM-P-0105-06	0.0800		
ASTM-P-0105-07	0.1000		

Nickel Standards for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0106-SET			7 x 100 mL
Cat. No.	Nickel Conc. (Wt.%)		100 mL
ASTM-P-0106-01	0.0000		
ASTM-P-0106-02	0.0005		
ASTM-P-0106-03	0.0010		
ASTM-P-0106-04	0.0025		
ASTM-P-0106-05	0.0050		
ASTM-P-0106-06	0.0075		
ASTM-P-0106-07	0.0100		

Internal Standard

ASTM-P-0107-5 500 mL

Manganese @ 0.05 Wt. % in Xylene-Mineral Oil





Traceable Organometallic Standards for AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards

Organometallic

ASTM-P-0108-SET

17 x 100 mL

Designed for ASTM D-6481-99

Cat. No. Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0108-01	0.600	0.005	0.175	0.060
ASTM-P-0108-02	0.500	0.200	0.050	0.080
ASTM-P-0108-03	0.400	0.150	0.300	0.180
ASTM-P-0108-04	0.260	0.250	0.150	0.120
ASTM-P-0108-05	0.005	0.005	0.450	0.070
ASTM-P-0108-06	0.400	0.025	0.350	0.100
ASTM-P-0108-07	0.300	0.060	0.250	0.120
ASTM-P-0108-08	0.200	0.100	0.450	0.100
ASTM-P-0108-09	0.060	0.080	0.300	0.130
ASTM-P-0108-10	0.060	0.050	0.200	0.050
ASTM-P-0108-11	0.050	0.120	0.100	0.075
ASTM-P-0108-12	0.025	0.150	0.200	0.130
ASTM-P-0108-13	0.005	0.200	0.400	0.150
ASTM-P-0108-14	0.170	0.250	0.550	0.110
ASTM-P-0108-15	0.100	0.100	0.200	0.200
ASTM-P-0108-16	0.010	0.010	0.600	0.250
ASTM-P-0108-17	0.000	0.000	0.000	0.000

ASTM-P-0109-SET

17 x 100 mL

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0109-01	0.600	0.100	0.005	0.175	0.060
ASTM-P-0109-02	0.500	0.000	0.200	0.050	0.080
ASTM-P-0109-03	0.400	0.010	0.150	0.300	0.180
ASTM-P-0109-04	0.260	0.500	0.250	0.150	0.120
ASTM-P-0109-05	0.005	1.000	0.005	0.450	0.070
ASTM-P-0109-06	0.400	0.400	0.025	0.350	0.100
ASTM-P-0109-07	0.300	0.100	0.060	0.250	0.120
ASTM-P-0109-08	0.200	0.010	0.100	0.450	0.100
ASTM-P-0109-09	0.060	0.050	0.080	0.300	0.130
ASTM-P-0109-10	0.060	0.200	0.050	0.200	0.050
ASTM-P-0109-11	0.050	0.500	0.120	0.100	0.075
ASTM-P-0109-12	0.025	0.800	0.150	0.200	0.130
ASTM-P-0109-13	0.005	1.000	0.200	0.400	0.150
ASTM-P-0109-14	0.170	0.600	0.250	0.550	0.110
ASTM-P-0109-15	0.100	0.200	0.100	0.200	0.200
ASTM-P-0109-16	0.010	0.400	0.010	0.600	0.250
ASTM-P-0109-17	0.000	0.000	0.000	0.000	0.000

ASTM-P-0110-SET

17 x 100 mL

Designed for ASTM D-4927-96

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0110-01	0.100	0.600	0.005	0.175	0.060
ASTM-P-0110-02	0.175	0.500	0.200	0.050	0.080
ASTM-P-0110-03	0.000	0.400	0.150	0.300	0.180
ASTM-P-0110-04	0.025	0.260	0.250	0.150	0.120
ASTM-P-0110-05	0.150	0.005	0.005	0.450	0.070
ASTM-P-0110-06	0.000	0.400	0.025	0.350	0.100
ASTM-P-0110-07	0.200	0.300	0.060	0.250	0.120
ASTM-P-0110-08	0.000	0.200	0.100	0.450	0.100
ASTM-P-0110-09	0.100	0.060	0.080	0.300	0.130
ASTM-P-0110-10	0.050	0.060	0.050	0.200	0.050
ASTM-P-0110-11	0.075	0.050	0.120	0.100	0.075
ASTM-P-0110-12	0.010	0.025	0.150	0.200	0.130
ASTM-P-0110-13	0.005	0.005	0.200	0.400	0.150
ASTM-P-0110-14	0.000	0.170	0.250	0.550	0.110
ASTM-P-0110-15	0.000	0.100	0.100	0.200	0.200
ASTM-P-0110-16	0.005	0.010	0.010	0.600	0.250
ASTM-P-0110-17	0.000	0.000	0.000	0.000	0.000

ASTM-P-0111-SET

17 x 100 mL

Designed for ASTM D-4927-96

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0111-01	0.100	0.600	0.100	0.005	0.175	0.060
ASTM-P-0111-02	0.175	0.500	0.000	0.200	0.050	0.080
ASTM-P-0111-03	0.000	0.400	0.010	0.150	0.300	0.180
ASTM-P-0111-04	0.025	0.260	0.500	0.250	0.150	0.120
ASTM-P-0111-05	0.150	0.005	1.000	0.005	0.450	0.070
ASTM-P-0111-06	0.000	0.400	0.400	0.025	0.350	0.100
ASTM-P-0111-07	0.200	0.300	0.100	0.060	0.250	0.120
ASTM-P-0111-08	0.000	0.200	0.010	0.100	0.450	0.100
ASTM-P-0111-09	0.100	0.060	0.050	0.080	0.300	0.130
ASTM-P-0111-10	0.050	0.060	0.200	0.050	0.200	0.050
ASTM-P-0111-11	0.075	0.050	0.500	0.120	0.100	0.075
ASTM-P-0111-12	0.010	0.025	0.800	0.150	0.200	0.130
ASTM-P-0111-13	0.005	0.005	1.000	0.200	0.400	0.150
ASTM-P-0111-14	0.000	0.170	0.600	0.250	0.550	0.110
ASTM-P-0111-15	0.000	0.100	0.200	0.100	0.200	0.200
ASTM-P-0111-16	0.005	0.010	0.400	0.010	0.600	0.250
ASTM-P-0111-17	0.000	0.000	0.000	0.000	0.000	0.000

ASTM-P-0112-SET

17 x 100 mL

Cat. No. Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0112-01	0.600	0.100	0.005	0.175	0.060
ASTM-P-0112-02	0.500	0.150	0.200	0.050	0.080
ASTM-P-0112-03	0.400	0.350	0.150	0.300	0.180
ASTM-P-0112-04	0.260	0.225	0.250	0.150	0.120
ASTM-P-0112-05	0.005	0.450	0.005	0.450	0.070
ASTM-P-0112-06	0.400	0.500	0.025	0.350	0.100
ASTM-P-0112-07	0.300	0.325	0.060	0.250	0.120
ASTM-P-0112-08	0.200	0.250	0.100	0.450	0.100
ASTM-P-0112-09	0.060	0.100	0.080	0.300	0.130
ASTM-P-0112-10	0.060	0.400	0.050	0.200	0.050
ASTM-P-0112-11	0.050	0.300	0.120	0.100	0.075
ASTM-P-0112-12	0.025	0.200	0.150	0.200	0.130
ASTM-P-0112-13	0.005	0.375	0.200	0.400	0.150
ASTM-P-0112-14	0.170	0.175	0.250	0.550	0.110
ASTM-P-0112-15	0.100	0.425	0.100	0.200	0.200
ASTM-P-0112-16	0.010	0.275	0.010	0.600	0.250
ASTM-P-0112-17	0.000	0.000	0.000	0.000	0.000

ASTM-P-0113-SET

17 x 100 mL

Designed for ASTM D-4628-97 & D-4927-96

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0113-01	0.025	0.600	0.100	0.005	0.175	0.060
ASTM-P-0113-02	0.000	0.500	0.150	0.200	0.050	0.080
ASTM-P-0113-03	0.100	0.400	0.350	0.150	0.300	0.180
ASTM-P-0113-04	0.175	0.260	0.225	0.250	0.150	0.120
ASTM-P-0113-05	0.150	0.005	0.450	0.005	0.450	0.070
ASTM-P-0113-06	0.000	0.400	0.500	0.025	0.350	0.100
ASTM-P-0113-07	0.100	0.300	0.325	0.060	0.250	0.120
ASTM-P-0113-08	0.200	0.200	0.250	0.100	0.450	0.100
ASTM-P-0113-09	0.050	0.060	0.100	0.080	0.300	0.130
ASTM-P-0113-10	0.075	0.060	0.400	0.050	0.200	0.050
ASTM-P-0113-11	0.010	0.050	0.300	0.120	0.100	0.075
ASTM-P-0113-12	0.000	0.025	0.200	0.150	0.200	0.130
ASTM-P-0113-13	0.175	0.005	0.375	0.200	0.400	0.150
ASTM-P-0113-14	0.005	0.170	0.175	0.250	0.550	0.110
ASTM-P-0113-15	0.000	0.100	0.425	0.100	0.200	0.200
ASTM-P-0113-16	0.005	0.010	0.275	0.010	0.600	0.250
ASTM-P-0113-17	0.000	0.000	0.000	0.000	0.000	0.000

These products do not require Hazardous Shipping charges at this time.

Traceable Organometallic Standards for AA, ICP, DCP & XRF Analysis



Organometallic Standards

Lubricating Oil Standards (Continued)

ASTM-P-0114-SET 17 x 100 mL

Designed for ASTM D-6481-99

EDXRF ASTM Method

Cat. No.	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0114-01	0.005	0.005	0.050	0.050
ASTM-P-0114-02	0.600	0.000	0.000	0.000
ASTM-P-0114-03	0.000	0.300	0.000	0.000
ASTM-P-0114-04	1.000	0.000	1.000	0.000
ASTM-P-0114-05	0.000	0.000	0.000	0.300
ASTM-P-0114-06	0.005	0.250	0.800	0.300
ASTM-P-0114-07	0.500	0.150	0.500	0.150
ASTM-P-0114-08	0.010	0.200	0.100	0.250
ASTM-P-0114-09	0.050	0.010	0.400	0.075
ASTM-P-0114-10	0.100	0.150	0.200	0.200
ASTM-P-0114-11	0.200	0.200	0.800	0.100
ASTM-P-0114-12	0.400	0.005	0.800	0.300
ASTM-P-0114-13	0.600	0.100	0.500	0.050
ASTM-P-0114-14	0.800	0.010	0.050	0.100
ASTM-P-0114-15	1.000	0.300	1.000	0.150
ASTM-P-0114-16	0.400	0.050	0.600	0.250
ASTM-P-0114-17	0.000	0.000	0.000	0.000

ASTM-P-0115-SET 17 x 100 mL

Cat. No.	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)	Mg (Wt.%)
ASTM-P-0115-01	0.005	0.005	0.050	0.050	0.100
ASTM-P-0115-02	0.600	0.000	0.000	0.000	0.150
ASTM-P-0115-03	0.000	0.300	0.000	0.000	0.350
ASTM-P-0115-04	1.000	0.000	1.000	0.000	0.225
ASTM-P-0115-05	0.000	0.000	0.000	0.300	0.450
ASTM-P-0115-06	0.005	0.250	0.800	0.300	0.500
ASTM-P-0115-07	0.500	0.150	0.500	0.150	0.325
ASTM-P-0115-08	0.010	0.200	0.100	0.250	0.250
ASTM-P-0115-09	0.050	0.010	0.400	0.075	0.050
ASTM-P-0115-10	0.100	0.150	0.200	0.200	0.400
ASTM-P-0115-11	0.200	0.200	0.800	0.100	0.300
ASTM-P-0115-12	0.400	0.005	0.800	0.300	0.200
ASTM-P-0115-13	0.600	0.100	0.500	0.050	0.375
ASTM-P-0115-14	0.800	0.010	0.050	0.100	0.175
ASTM-P-0115-15	1.000	0.300	1.000	0.150	0.425
ASTM-P-0115-16	0.400	0.050	0.600	0.250	0.275
ASTM-P-0115-17	0.000	0.000	0.000	0.000	0.000

ASTM-P-0116-SET 11 x 100 mL

Designed for ASTM D-6481-99

Additives

Cat. No.	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0116-01	0.500	1.000	0.500	0.500
ASTM-P-0116-02	3.000	1.000	3.000	2.000
ASTM-P-0116-03	2.000	1.250	1.000	1.500
ASTM-P-0116-04	5.000	1.500	0.500	1.200
ASTM-P-0116-05	4.000	0.500	1.500	0.750
ASTM-P-0116-06	2.500	0.750	4.000	1.000
ASTM-P-0116-07	4.000	0.500	2.000	1.250
ASTM-P-0116-08	0.500	2.000	5.000	1.000
ASTM-P-0116-09	1.000	0.750	2.000	1.500
ASTM-P-0116-10	2.500	1.200	3.000	0.500
ASTM-P-0116-11	0.000	0.000	0.000	0.000

ASTM-P-0117-SET 10 x 100 mL

Designed for ASTM D-6443-99

WLXRF ASTM Method

Cat. No.	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0117-01	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0117-02	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0117-03	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0117-04	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0117-05	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0117-06	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0117-07	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0117-08	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0117-09	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0117-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ASTM-P-0118-SET 10 x 100 mL

Designed for ASTM D-4628-97, D-4927-96, D-4951-96, D-6443-99

WLXRF ASTM Method

Cat. No.	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0118-01	0.020	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0118-02	0.250	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0118-03	0.020	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0118-04	0.250	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0118-05	0.020	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0118-06	0.250	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0118-07	0.020	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0118-08	0.250	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0118-09	0.130	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0118-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Lubricating Oil Standards continued on next page



Traceable Organometallic Standards for AA, ICP, DCP & XRF Analysis

Organometallic

Lubricating Oil Standards (Continued)

ASTM-P-0119-SET

22 x 100 mL

Designed for ASTM D-4628-97, D-4927-96, D-4951-96, D-8443-99

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0119-01	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0119-02	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0119-03	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0119-04	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0119-05	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0119-06	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0119-07	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0119-08	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0119-09	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0119-10	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0119-11	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0119-12	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0119-13	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0119-14	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0119-15	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0119-16	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0119-17	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0119-18	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0119-19	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0119-20	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0119-21	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0119-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standards of Interest

Concentration for the sets on pages 50-52 are targets. Actual production lots may vary.

These products do not require Hazardous Shipping charges at this time.

ASTM-P-0120-SET

23 x 100 mL

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0120-01	0.100	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0120-02	0.175	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0120-03	0.040	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0120-04	0.020	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0120-05	0.150	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0120-06	0.000	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0120-07	0.200	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0120-08	0.000	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0120-09	0.000	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0120-10	0.000	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0120-11	0.100	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-12	0.050	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0120-13	0.000	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0120-14	0.080	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0120-15	0.010	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0120-16	0.000	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0120-17	0.000	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0120-18	0.000	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0120-19	0.150	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0120-20	0.005	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0120-21	0.100	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0120-22	0.120	0.200	0.000	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Metal Working Fluids

ASTM-P-0121-SET

13 x 100 mL

Cat. No. Nominal Value	Cl (Wt.%)	P (Wt.%)	S (Wt.%)
ASTM-P-0121-01	0.000	0.000	0.000
ASTM-P-0121-02	0.750	0.025	0.500
ASTM-P-0121-03	0.050	0.100	3.000
ASTM-P-0121-04	1.000	0.500	2.500
ASTM-P-0121-05	0.100	0.005	2.000
ASTM-P-0121-06	1.500	0.200	1.000
ASTM-P-0121-07	2.000	0.005	3.000
ASTM-P-0121-08	1.000	0.050	0.100
ASTM-P-0121-09	0.500	0.400	0.000
ASTM-P-0121-10	2.000	0.200	1.500
ASTM-P-0121-11	0.000	0.500	1.500
ASTM-P-0121-12	1.250	0.010	0.050
ASTM-P-0121-13	0.050	0.300	0.050

Stabilization Solutions

The solutions were specifically designed for chelating & solubilizing our line of Sulfur-Free Organometallic Standards. Contact Tech Service for additional information.

Stabilizer Solution A

ASTM-P-0122-0.5 50 mL
ASTM-P-0122-1 100 mL

Stabilizer Solution C

ASTM-P-0124-0.5 50 mL
ASTM-P-0124-1 100 mL

Stabilizer Solution B

ASTM-P-0123-0.5 50 mL
ASTM-P-0123-1 100 mL

Stabilizer Solution D

ASTM-P-0125-0.5 50 mL
ASTM-P-0125-1 100 mL

ASTM-P-0100-SET:49	WM-20CST-32:46	WM-NMS-05:47	WM-NMS-60-50X-50G:47
ASTM-P-0101-SET:49	WM-20CST-33:46	WM-NMS-05-5X:47	WM-NMS-60-5X:47
ASTM-P-0102-SET:49	WM-20CST-34:46	WM-NMS-07-25X-25G:47	WM-NMS-63:47
ASTM-P-0103-SET:49	WM-20CST-35:46	WM-NMS-07-25X-50G:47	WM-NMS-63-5X:47
ASTM-P-0104-SET:49	WM-20CST-37:46	WM-NMS-08:47	WM-NMS-63-75X-25G:47
ASTM-P-0105-SET:49	WM-20CST-41:46	WM-NMS-08-100X-25G:47	WM-NMS-63-75X-50G:47
ASTM-P-0106-SET:49	WM-20CST-43:46	WM-NMS-08-100X-50G:47	WM-NMS-64:47
ASTM-P-0107-5:49	WM-20CST-50:46	WM-NMS-08-5X:47	WM-NMS-64-50X-25G:47
ASTM-P-0108-SET:50	WM-20CST-51:46	WM-NMS-09:47	WM-NMS-64-50X-50G:47
ASTM-P-0109-SET:50	WM-20CST-52:46	WM-NMS-09-50X-25G:47	WM-NMS-64-5X:47
ASTM-P-0110-SET:50	WM-20CST-53:46	WM-NMS-09-50X-50G:47	WM-NMS-67:47
ASTM-P-0111-SET:50	WM-20CST-54:46	WM-NMS-09-5X:47	WM-NMS-67-40X-25G:47
ASTM-P-0112-SET:50	WM-20CST-55:46	WM-NMS-11-50X-25G:47	WM-NMS-67-40X-50G:47
ASTM-P-0113-SET:50	WM-20CST-56:46	WM-NMS-11-50X-50G:47	WM-NMS-67-5X:47
ASTM-P-0114-SET:51	WM-20CST-60:46	WM-NMS-13:47	WM-NMS-68:47
ASTM-P-0115-SET:51	WM-20CST-63:46	WM-NMS-13-35X-25G:47	WM-NMS-68-5X:47
ASTM-P-0116-SET:51	WM-20CST-64:46	WM-NMS-13-35X-50G:47	WM-NMS-69-25X-25G:47
ASTM-P-0117-SET:51	WM-20CST-69:46	WM-NMS-13-5X:47	WM-NMS-69-25X-50G:47
ASTM-P-0118-SET:51	WM-20CST-70:46	WM-NMS-14:47	WM-NMS-70:47
ASTM-P-0119-SET:52	WM-20CST-71:46	WM-NMS-14-5X:47	WM-NMS-70-5X:47
ASTM-P-0120-SET:52	WM-21-10X-4:46	WM-NMS-14-75X-25G:47	WM-NMS-70-60X-25G:47
ASTM-P-0121-SET:52	WM-21-10X-8:46	WM-NMS-14-75X-50G:47	WM-NMS-70-60X-50G:47
ASTM-P-0122-0.5:47, 52	WM-21-1X-4:46	WM-NMS-15:47	WM-NMS-71:47
ASTM-P-0122-1:47, 52	WM-21-1X-8:46	WM-NMS-15-5X:47	WM-NMS-71-50X-25G:47
ASTM-P-0123-0.5:47, 52	WM-21-30X-4:46	WM-NMS-15-60X-25G:47	WM-NMS-71-50X-50G:47
ASTM-P-0123-1:47, 52	WM-21-30X-8:46	WM-NMS-15-60X-50G:47	WM-NMS-71-5X:47
ASTM-P-0124-0.5:52	WM-21-3X-4:46	WM-NMS-20:47	
ASTM-P-0124-1:52	WM-21-3X-8:46	WM-NMS-20-5X:47	
ASTM-P-0125-0.5:52	WM-21-4-SET:46	WM-NMS-22:47	
ASTM-P-0125-1:52	WM-21-50X-4:46	WM-NMS-27:47	
MA-900-4:46	WM-21-50X-8:46	WM-NMS-27-40X-25G:47	
MA-900-8:46	WM-21-5X-4:46	WM-NMS-27-40X-50G:47	
MOSOL-20:46	WM-21-5X-8:46	WM-NMS-27-5X:47	
MOSOL-75:46	WM-21-8-SET:46	WM-NMS-29:47	
WC-STAB:46	WM-21-90X-4:46	WM-NMS-29-200X-25G:47	
WM-11-NMS-1-SET:48	WM-21-90X-8:46	WM-NMS-29-200X-50G:47	
WM-11-NMS-10X-1:48	WM-21-NMS-1-SET:48	WM-NMS-29-5X:47	
WM-11-NMS-1X-1:48	WM-21-NMS-10X-1:48	WM-NMS-30:47	
WM-11-NMS-30X-1:48	WM-21-NMS-1X-1:48	WM-NMS-30-15X-25G:47	
WM-11-NMS-3X-1:48	WM-21-NMS-30X-1:48	WM-NMS-30-15X-50G:47	
WM-11-NMS-50X-1:48	WM-21-NMS-3X-1:48	WM-NMS-30-5X:47	
WM-11-NMS-5X-1:48	WM-21-NMS-50X-1:48	WM-NMS-32:47	
WM-11-NMS-90X-1:48	WM-21-NMS-5X-1:48	WM-NMS-32-30X-25G:47	
WM-12-10X-4:46	WM-75CST-01-5X:46	WM-NMS-32-30X-50G:47	
WM-12-10X-8:46	WM-75CST-02-5X:46	WM-NMS-32-5X:47	
WM-12-1X-4:46	WM-75CST-04-5X:46	WM-NMS-33:47	
WM-12-1X-8:46	WM-75CST-06-5X:46	WM-NMS-33-5X:47	
WM-12-30X-4:46	WM-75CST-07-5X:46	WM-NMS-33-60X-25G:47	
WM-12-30X-8:46	WM-75CST-08-5X:46	WM-NMS-33-75X-50G:47	
WM-12-3X-4:46	WM-75CST-09-5X:46	WM-NMS-34:47	
WM-12-3X-8:46	WM-75CST-13-5X:46	WM-NMS-34-5X:47	
WM-12-4-SET:46	WM-75CST-14-5X:46	WM-NMS-35:47	
WM-12-50X-4:46	WM-75CST-15-5X:46	WM-NMS-35-50X-25G:47	
WM-12-50X-8:46	WM-75CST-27:46	WM-NMS-35-50X-50G:47	
WM-12-5X-4:46	WM-75CST-27-5X:46	WM-NMS-35-5X:47	
WM-12-5X-8:46	WM-75CST-29-5X:46	WM-NMS-37:47	
WM-12-8-SET:46	WM-75CST-30-5X:46	WM-NMS-37-50X-25G:47	
WM-12-90X-4:46	WM-75CST-32-5X:46	WM-NMS-37-50X-50G:47	
WM-12-90X-8:46	WM-75CST-33-5X:46	WM-NMS-37-5X:47	
WM-12-NMS-1-SET:48	WM-75CST-35-5X:46	WM-NMS-41:47	
WM-12-NMS-10X-1:48	WM-75CST-37-5X:46	WM-NMS-41-50X-25G:47	
WM-12-NMS-1X-1:48	WM-75CST-41-5X:46	WM-NMS-41-50X-50G:47	
WM-12-NMS-30X-1:48	WM-75CST-43-5X:46	WM-NMS-41-5X:47	
WM-12-NMS-3X-1:48	WM-75CST-51-5X:46	WM-NMS-43:47	
WM-12-NMS-50X-1:48	WM-75CST-52-5X:46	WM-NMS-43-5X:47	
WM-12-NMS-5X-1:48	WM-75CST-53-5X:46	WM-NMS-43-75X-25G:47	
WM-20-NMS-1-SET:48	WM-75CST-54-5X:46	WM-NMS-43-75X-50G:47	
WM-20-NMS-10X-1:48	WM-75CST-56-5X:46	WM-NMS-44-30X-25G:47	
WM-20-NMS-1X-1:48	WM-75CST-63-5X:46	WM-NMS-44-30X-50G:47	
WM-20-NMS-30X-1:48	WM-75CST-64-5X:46	WM-NMS-51:47	
WM-20-NMS-3X-1:48	WM-75CST-67:46	WM-NMS-51-35X-25G:47	
WM-20-NMS-50X-1:48	WM-75CST-67-5X:46	WM-NMS-51-35X-50G:47	
WM-20-NMS-5X-1:48	WM-75CST-69-5X:46	WM-NMS-51-5X:47	
WM-20-NMS-90X-1:48	WM-75CST-70-5X:46	WM-NMS-52:47	
WM-20CST-01:46	WM-75CST-71-5X:46	WM-NMS-52-5X:47	
WM-20CST-02:46	WM-NMS-01:47	WM-NMS-52-75X-25G:47	
WM-20CST-03:46	WM-NMS-01-30X-25G:47	WM-NMS-52-75X-50G:47	
WM-20CST-04:46	WM-NMS-01-30X-50G:47	WM-NMS-53:47	
WM-20CST-05:46	WM-NMS-01-5X:47	WM-NMS-53-5X:47	
WM-20CST-06:46	WM-NMS-02:47	WM-NMS-54:47	
WM-20CST-07:46	WM-NMS-02-20X-25G:47	WM-NMS-54-25X-25G:47	
WM-20CST-08:46	WM-NMS-02-20X-50G:47	WM-NMS-54-25X-50G:47	
WM-20CST-09:46	WM-NMS-02-5X:47	WM-NMS-54-5X:47	
WM-20CST-13:46	WM-NMS-03:47	WM-NMS-55:47	
WM-20CST-14:46	WM-NMS-03-5X:47	WM-NMS-55-100X-25G:47	
WM-20CST-15:46	WM-NMS-04:47	WM-NMS-55-100X-50G:47	
WM-20CST-28:46	WM-NMS-04-125X-25G:47	WM-NMS-55-5X:47	
WM-20CST-29:46	WM-NMS-04-125X-50G:47	WM-NMS-60:47	
WM-20CST-30:46	WM-NMS-04-5X:47	WM-NMS-60-50X-25G:47	