



# ANALYTICAL SERVICES, INC.

*It's a Matter of Quality!*

Analytical Services, Inc. specializes and manufactures calibration standards serving the petroleum, lube and crude oil industry since 1993.

All standards are produced and certified "in-house" and accompanied with a Certificate of Analysis indicating traceability to NIST and ASTM methods, validity term and relative degree of uncertainty.

Analytical Services, Inc. is additionally equipped to accommodate special formulation requests to serve specific needs of individual laboratories.



## **Analytical Services, Inc.**

***"STANDARDIZING THE PETROCHEMICAL INDUSTRY"***

P.O. Box 7895  
The Woodlands, TX 77387  
Telephone/Fax: (281) 419-9229  
Toll Free: 1-866-419-9229

You can visit us and order or get quotes from our NEW website  
[www.AnalyticalServicesInc.com](http://www.AnalyticalServicesInc.com)



# ANALYTICAL SERVICES, INC.

*It's a Matter of Quality!*

## Table of Contents

SULFUR STANDARD SETS IN VARIOUS MATRICES- FORMULATED SETS .....	4
SULFUR STANDARDS .....	7
ULTRA LOW SULFUR IN DIESEL FUEL .....	8
SULFUR STANDARDS FOR EPA METHODS 80.580 TO 80.585 .....	8
SULFUR AND METALS IN OIL- FORMULATED SETS .....	9
CHLORINE STANDARDS IN WASTE OIL- FORMULATED SETS .....	10
CHLORINE AND SULFUR STANDARDS IN VARIOUS MATRICES-FORMULATED SETS .....	10
LEAD STANDARDS IN VARIOUS MATRICES- FORMULATED SETS .....	11
VANADIUM AND NICKEL STANDARDS .....	12
LUBRICATING OIL STANDARDS- FORMULATED SETS .....	13
METAL WORKING FLUIDS STANDARDS- FORMULATED SETS .....	14
STABILIZED ORGANO-METALLIC SOLUTIONS.....	14
STABILIZED ORGANO-METALLIC SOLUTIONS.....	15
STABILIZED ORGANO-METALLIC SOLUTIONS INTERNAL STANDARDS.....	17
WEAR METAL STANDARDS ORGANO-METALLIC.....	18
A-SERIES of MULTI ELEMENT WEAR METAL STANDARDS FOR ICP, RDE & other TECHNIQUES .....	19
REAGENTS .....	20
MATRIX OILS.....	21
STABILIZATION SOLUTIONS.....	21
NITROGEN IN SOLID POLYMER .....	22
STANDARDS FOR PE ANALYSIS.....	22
STANDARDS FOR PVC ANALYSIS .....	23



# ANALYTICAL SERVICES, INC.

*It's a Matter of Quality!*

MONITOR SAMPLES FOR XRF - SILICATE GLASSES - SINGLE ELEMENTS .....	24
PHYSICAL TESTING STANDARDS.....	25
NITROGEN AND SULFUR AMPUOLES .....	28
TITRATION STANDARDS .....	30
NITROGEN BASES IN HYDROCARBONS .....	31
LEAD STANDARDS IN PAINT COATINGS ON POLYESTER FILM .....	32
BIODIESEL TESTING STANDARDS .....	33
CONCENTRATION TABLES .....	36

Analytical Services is proud to offer Chemplex® Consumables.



We accept Visa, Master Card, and American Express, checks drawn on US banks only and Electronic Wire Transfers.

\*Please call or email for wire transfer information.

## SULFUR STANDARD SETS IN VARIOUS MATRICES- FORMULATED SETS

\*\*see concentration tables on page 36

Product Code	Product	Method	Description	Price per Set	Individual (100 ml)	Individual (1 L)	Individual (Gal)
S(BS)I13	SULFUR IN ISOCTANE FOR GASOLINE AND REFORMULATED GASOLINE ANALYSIS FLAMMABLE UN1262	ASTM D6334 & D2622	Di-N-butyl sulfide in Isooctane. Conc. Range: 0-0.300 wt%; 13 standards per set, 100 ml each	\$780.00	\$90.00	\$430.00	\$850.00
S(BS)IT10	LOW LEVEL SULFUR STANDARDS FLAMMABLE UN1993	ASTM D6334 & D6445	Di-N-butyl sulfide in Isooctane-Toluene mixture. Conc. Range: 0-0.1000 wt%; 10 standards per set, 100 ml each	\$650.00	\$90.00	\$450.00	\$855.00
S(T)IT10	LOW LEVEL SULFUR STANDARDS FLAMMABLE UN1993	ASTM D6334 & D6445	Thiophene and Methyl Thiophene Isooctane-Toluene mixture. Conc. Range: 0-0.1000 wt%; 10 standards per set, 100 ml each	\$650.00	\$90.00	\$430.00	\$855.00
SCO10	SULFUR IN CRUDE OIL FLAMMABLE UN1267	ASTM D2622 & D4294	Di-N-butyl sulfide in crude oil. Conc. Range: 0.05-5.0 wt%; 10 standards per set, 100 ml each	\$760.00	\$95.00	\$480.00	\$855.00
SCO7	SULFUR IN CRUDE OIL FLAMMABLE UN1267	ASTM D2622 & 4294	Di-N-butyl sulfide in crude oil. Conc. Range: 0.05-2.0 wt%; 7 standards per set, 100 ml each	\$540.00	\$95.00	\$480.00	\$855.00
SDF10	SULFUR IN DIESEL FUEL	ASTM D2622 & D4294	Di-N-butyl sulfide in synthetic diesel fuel. Conc. Range :0-5.0 wt%; 10 standards per set, 100 ml each	\$700.00	\$85.00	\$450.00	\$855.00
SDF7	SULFUR IN DIESEL FUEL	ASTM D4294	Di-N-butyl sulfide in synthetic diesel fuel. Conc. Range: 0-0.100 wt%; 7 standards per set, 100 ml each	\$500.00	\$80.00	\$425.00	\$830.00
SG10C	SULFUR IN GASOLINE FLAMMABLE UN1203	ASTM D2622, D6334, D6445 & D4294	Di-N-butyl sulfide in unleaded gasoline. Due to the volatility of gasoline these standards are not stocked and are prepared as custom standards upon receipt of order. Specify concentrations; 10 standards per set, 100 ml each	\$735.00	\$95.00	\$480.00	\$855.00

SG7C	SULFUR IN GASOLINE FLAMMABLE UN1203	ASTM D2622, D6334, D6445 & D4294	Di-N-butyl sulfide in unleaded gasoline. Due to the volatility of gasoline these standards are not stocked and are prepared as custom standards upon receipt of order. Specify concentrations: 7 standards per set, 100ml each	\$545.00	\$95.00	\$480.00	\$855.00
SHDF5	SULFUR STANDARDS IN HEAVY DIESEL FUEL	ASTM D2622	Di-N-butyl sulfide in synthetic heavy diesel fuel. Conc. Range: 0-.5 wt%; 5 standards per set, 100 ml each	\$400.00	\$80.00	\$425.00	\$760.00
SIO11	SULFUR IN ISOCTANE COMPLETE RANGE FLAMMABLE UN1262	ASTM D5453	Di-N-butyl sulfide in Isooctane. Conc. Range: 0-1000.00 ng/uL; 11 standards per set, 100ml each	\$675.00	\$80.00	\$430.00	\$760.00
SIO3(H)	SULFUR IN ISOCTANE HIGH RANGE FLAMMABLE UN1262	ASTM D5453	Di-N-butyl sulfide in Isooctane. Conc. Range: 100.00-1000.00 ng/uL; 3 standards per set, 100 ml each	\$260.00	\$80.00	\$430.00	\$760.00
SIO4(M)	SULFUR IN ISOCTANE MEDIUM RANGE FLAMMABLE UN1262	ASTM D5453	Di-N-butyl sulfide in Isooctane. Conc. Range: 5.00-100.00 ng/uL; 4 standards per set, 100ml each	\$305.00	\$80.00	\$430.00	\$760.00
SIO6(L)	SULFUR IN ISOCTANE LOW RANGE FLAMMABLE UN1262	ASTM D5453	Di-N-butyl sulfide in Isooctane. Conc. Range: 0.0-10.00 ng/uL; 6 standards per set, 100ml each	\$435.00	\$80.00	\$430.00	\$760.00
SISOH7	SULFUR STANDARDS HIGH RANGE, WITH 18% ZIRCONIUM INTERNAL STANDARD	ISO/CD 14596	Di-N-butyl sulfide and 18% zirconium internal standard in mineral oil. Conc. Range: 0.40-2.5 wt%; 7 standards per set, 100 ml each	\$725.00	\$120.00	\$630.00	\$1,070.00
SISOL8	SULFUR STANDARDS LOW RANGE, WITH 1% ZIRCONIUM INTERNAL STANDARD	ISO/CD 14596	Di-N-butyl sulfide and 1% zirconium internal standard in mineral oil. Conc. Range: 0-1000 ppm; 8 standards per set, 100 ml each	\$780.00	\$120.00	\$630.00	\$1070.00

SITCS5(H)	SULFUR STANDARDS FOR CANADIAN GENERAL STANDARDS BOARD HIGH RANGE FLAMMABLE UN1993	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in Isooctane-Toluene mixture. Conc. Range: 0.020-0.100 wt%; 5 standards per set, 100 ml each	\$350.00	\$85.00	\$430.00	\$850.00
SITCS5(L)	SULFUR STANDARDS FOR CANADIAN GENERAL STANDARDS BOARD LOW RANGE FLAMMABLE UN1993	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in Isooctane-Toluene mixture. Conc. Range: 0-0.020 wt%; 5 standards per set, 100 ml each	\$350.00	\$85.00	\$430.00	\$850.00
SITCS9	SULFUR STANDARDS FOR CANADIAN GENERAL STANDARDS BOARD COMPLETE RANGE FLAMMABLE UN1993	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in Isooctane-Toluene mixture. Conc. Range: 0-0.1000 wt%; 9 standards per set, 100 ml each	\$640.00	\$85.00	\$430.00	\$850.00
SMO10	SULFUR IN MINERAL OIL	ASTM D2622 & D4294	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-0.100 wt%; 10 standards per set, 100 ml each	\$640.00	\$80.00	\$425.00	\$830.00
SMO10(HL)	SULFUR IN MINERAL OIL	ASTM D2622 & D4294	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-5.00 wt%; 10 standards per set, 100 ml each	\$705.00	\$85.00	\$450.00	\$855.00
SMO11	SULFUR IN MINERAL OIL COMPLETE RANGE	ASTM D4294	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-5.00 wt%; 11 standards per set, 100 ml each	\$750.00	\$85.00	\$450.00	\$855.00
SMO6H	SULFUR IN MINERAL OIL HIGH RANGE	ASTM D4294	Di-N-butyl sulfide in mineral oil. Conc. Range: 0.100-5.000 wt%; 6 standards per set, 100 ml each	\$410.00	\$85.00	\$450.00	\$855.00
SMO7L	SULFUR IN MINERAL OIL LOW RANGE	ASTM D4294	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-0.100 wt%; 7 standards per set, 100 ml each	\$480.00	\$80.00	\$425.00	\$830.00

SMOCS10	SULFUR STANDARDS FOR CANADIAN GENERAL STANDARDS BOARD COMPLETE RANGE	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-0.5000 wt%; 10 standards per set, 100 ml each	\$690.00	\$80.00	\$430.00	\$850.00
SMOCS5(H)	SULFUR STANDARDS FOR CANADIAN GENERAL STANDARDS BOARD HIGH RANGE	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in mineral oil. Conc. Range: 0.100-0.500 wt%; 5 standards per set, 100 ml each	\$345.00	\$80.00	\$430.00	\$850.00
SMOCS6(L)	SULFUR STANDARDS FOR CANADIAN STANDARDS BOARD LOW RANGE	CAN/GS-3.0 NO. 16.1-98	Di-N-butyl sulfide in mineral oil. Conc. Range: 0-0.1000 wt%; 6 standards per set, 100 ml each	\$410.00	\$80.00	\$430.00	\$850.00
SRO10	SULFUR IN RESIDUAL OIL	ASTM D2622 & D4294	Di-N-butyl sulfide in residual oil. Conc. Range: 0.25-5.00 wt%; 10 standards per set, 100 ml each	\$760.00	\$95.00	\$480.00	\$855.00

<b>SULFUR STANDARDS</b>				
<b>SULFUR STANDARDS FOR ASTM METHOD D7039</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
SIN-6C	SULFUR IN MINERAL OIL	ASTM D7039	Sulfur in Mineral Oil concentrations of 0, 10, 50, 100, 200 and 500 ppm; 100 ml each	\$350.00
SMO6(H)-H	SULFUR IN MINERAL OIL	ASTM D7039	Sulfur in Mineral Oil concentrations of 0, 100, 200, 400, 800 and 1000ppm; 100 ml each	\$420.00
SMO6(L)-H	SULFUR IN MINERAL OIL	ASTM D7039	Sulfur in Mineral Oil concentrations of 0, 2, 5, 10, 15 and 20ppm; 100ml each	\$420.00
SMO6(M)-H	SULFUR IN MINERAL OIL	ASTM D7039	Sulfur in Mineral Oil concentrations of 0, 5, 10, 25 and 50ppm; 100ml each	\$400.00

<b>ULTRA LOW SULFUR IN DIESEL FUEL</b>				
<b>ULTRA LOW SULFUR IN DIESEL FUEL</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
ULSD0-25	ULTRA LOW SULFUR IN DIESEL FUEL		Sulfur with Ultra Low Diesel Fuel concentrations of 0, 5, 10, 15, 20 and 25ppm; 100ml each	\$350.00
ULSD20-100	ULTRA LOW SULFUR IN DIESEL FUEL		Sulfur with Ultra Low Diesel Fuel concentrations of 20, 40, 60, 80 and 100ppm; 100ml each	\$350.00

<b>SULFUR STANDARDS FOR EPA METHODS 80.580 TO 80.585</b>				
<b>Table: SULFUR STANDARDS FOR EPA METHODS 80.580 TO 80.585</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
SEPA(G)H	SULFUR IN MINERAL OIL	EPA 80.580 TO 80.585	Sulfur in Mineral Oil Gravimetric standard for EPA high-level requirements. Set of two standards, 150 and 450ppm; 200ml each	\$235.00
SEPA(G)L	SULFUR IN MINERAL OIL	EPA 80.580 TO 80.585	Sulfur in Mineral Oil Gravimetric standard for EPA high-level requirements. Set of two standards, 5 and 15ppm; 200ml each	\$240.00
SEPA(P)H	SULFUR IN DIESEL FUEL	EPA 80.580 TO 80.585	Sulfur in Diesel Fuel Precision standard for EPA high level requirements. 300ppm; 400ml each	\$120.00
SEPA(P)L	SULFUR IN DIESEL FUEL	EPA 80.580 TO 80.585	Sulfur in Diesel Fuel Precision standard for EPA low level requirements. 7ppm; 400ml each	\$120.00
SEPA6C	COMPLETE SET	EPA 80.580 TO 80.585	This is the complete set of standards for the EPA requirements and includes all of the above Products	\$590.00

## SULFUR AND METALS IN OIL- FORMULATED SETS

\*\* see concentration tables on page 43

**Table: SULFUR AND METALS IN OIL**

Product Code	Product	Method	Description	Price per Set	Individual (100 ml)
SFNVMO12	SULFUR AND METALS IN MINERAL OIL; S, Fe, Ni, V		For the analysis of fuel and residual oils. Concentration of Fe, Ni and V are independent of the sulfur concentration. Each certified component added independently. Conc. Ranges: S:0.500-5.500 wt% V: 25-500 ppm Ni: 5-100 ppm Fe: 50-500 ppm; 12 standards per set, 100 ml each	\$1,865.00	\$245.00
SFNVRO12	SULFUR AND METALS IN RESIDUAL FUEL OIL; S, Fe, Ni, V		Same as SFNVMO except that the matrix is Residual Fuel Oil, 12 standards per set: 100ml each	\$2,115.00	\$260.00
SNVMO12	SULFUR AND METALS IN MINERAL OIL; S, Ni, V		For the analysis of fuel and residual oils. Concentration of Ni and V are independent of the sulfur concentration. Each certified component added independently. Conc. Ranges: S:0.500-5.500 wt% V: 25-500 ppm Ni: 5-100 ppm 12 standards per set; 100ml each	\$1,595.00	\$215.00
SNVRO12	SULFUR AND METALS IN RESIDUAL FUEL OIL; S, Ni, V		Same as SNVMO except that the matrix is Residual Fuel Oil, 12 standards per set: 100ml each	\$1,870.00	\$215.00

## CHLORINE STANDARDS IN WASTE OIL- FORMULATED SETS

\*\* see concentration table on page 45

**Table: CHLORINE STANDARDS**

Product Code	Product			Price per Set	Individual (100 ml)	Individual (1 L)
CLWO7	CHLORINE IN WASTE OIL		Chlorinated hydrocarbon in waste oil. Conc. Range: 0-1.00wt%; 7 standards per set, 100ml each	\$510.00	\$95.00	\$465.00

## CHLORINE AND SULFUR STANDARDS IN VARIOUS MATRICES-FORMULATED SETS

\*\*see concentration table on page 45

**Table: CHLORINE AND SULFUR STANDARDS**

Product Code	Product	Method	Description	Price per Set	Individual (100 ml)	Individual (1 L)
CLSMO10	CHLORINE AND SULFUR IN MINERAL OIL		Chlorinated hydrocarbon and Di-N-butyl sulfide in mineral oil. Conc. Range: Cl: 0-1.00wt%, S: 0-1.00wt%; 10 standards per set, 100ml each	\$895.00	\$120.00	\$630.00
CLSWO10	CHLORINE AND SULFUR IN WASTE OIL		Chlorinated hydrocarbon and Di-N-butyl sulfide in waste oil. Conc. Range: Cl: 0-1.00wt%, S: 0-2.500wt%; 10 standards per set, 100ml each	\$920.00	\$135.00	\$655.00

## LEAD STANDARDS IN VARIOUS MATRICES- FORMULATED SETS

\*\* see concentration tables on page 46

<b>Table: LEAD STANDARDS</b>					
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (100ml)</b>
BIIS	BISMUTH INTERNAL STANDARD	ASTM D5059	Internal Standard Conc: 0.793g Bi/l		\$100.00
PBG12	LEAD IN GASOLINE FLAMMABLE UN1203	Covers the scope of ASTM D5059 Parts A & C	This set is made up of PBG7A and PBG7C 12 standards per set; 100 ml each	\$1,070.00	\$95.00
PBG7A	LEAD IN GASOLINE FLAMMABLE UN1203	Covers the scope of ASTM D509 Part A	7 standards per set; 100 ml each	\$565.00	\$95.00
PBG7C	LEAD IN GASOLINE FLAMMABLE UN1203	Covers the scope of ASTM D5059 Part C	7 standards per set; 100 ml each	\$565.00	\$95.00
PBIO7A	LEAD IN ISOCTANE FLAMMABLE UN1262	ASTM D5059, PART A	7 standards per set; 100 ml each	\$565.00	\$95.00
PBIO12	LEAD IN ISOCTANE FLAMMABLE UN1262	ASTM D5059, PARTS A & C	This set is made up of PBIO7A and PBIO7C 12 standards per set; 100 ml each	\$1,070.00	\$95.00
PBIO7C	LEAD IN ISOCTANE FLAMMABLE UN1262	ASTM D5059, PART C	7 standards per set; 100 ml each	\$565.00	\$95.00
PBT12	LEAD IN TOLUENE FLAMMABLE UN1294	ASTM D5059, PARTS A & C	This set is made up of PBT7A and PBT7C 12 standards per set; 100 ml each	\$1,070.00	\$95.00
PBT7A	LEAD IN TOLUENE FLAMMABLE UN1294	ASTM D5059, PART A	7 standards per set; 100 ml each	\$565.00	\$95.00
PBT7C	LEAD IN TOLUENE FLAMMABLE UN1294	ASTM D5059, PART C	7 standards per set; 100 ml each	\$565.00	\$95.00

**VANADIUM AND NICKEL STANDARDS****WITH MANGANESE INTERNAL STANDARD IN XYLENE-MINERAL OIL- FORMULATED SETS**

\*\* see concentration tables on page 47

<b>Table: VANADIUM AND NICKEL STANDARDS WITH MANGANESE</b>						
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (100 ml)</b>	<b>Individual (1 L)</b>
MNIS-0.05	MANGANESE INTERNAL STANDARD, 0.05%	ISO/CD 14596	500ml; \$215.00		\$105.00	\$370.00
NiISO7	NICKEL STANDARDS WITH 0.05% MANGANESE INTERNAL STANDARD FLAMMABLE UN1307	ISO/CD 14596	Nickel Reagent and 0.05% Manganese internal standard in xylene-mineral oil. Conc. Range: 0-0.0100wt%; 7 standards per set, 100ml each	\$785.00	\$125.00	\$620.00
VISOH7	VANADIUM STANDARD, HIGH RANGE WITH 0.05% MANGANESE INTERNAL STANDARD FLAMMABLE UN1307	ISO/CD 14596	Vanadium reagent and 0.05% Manganese internal standard in xylene-mineral oil. Conc. Range: 0.03-0.100wt%; 7 standards per set, 100ml each	\$785.00	\$125.00	\$620.00
VISOL9	VANADIUM STANDARD, LOW RANGE WITH 0.05% MANGANESE INTERNAL STANDARD FLAMMABLE UN1307	ISO/CD 14596	Vanadium reagent and 0.05% Manganese internal standard in xylene-mineral oil. Conc. Range: 0.0005-0.0200wt%; 9 standards per set, 100ml each	\$1,005.00	\$150.00	\$620.00

## LUBRICATING OIL STANDARDS- FORMULATED SETS

\*\* see concentration tables on page 48

**Table: LUBRICATING OIL STANDARDS**

Product Code	Product	Method	Description	Price per Set	Individual (100 ml)
LOA11	LUBRICATING OIL ADDITIVES: Ca, P, S, Zn	ASTM D6481, 6443, 4927	Similar to LOE17, but additive package concentration ranges. 11 standards per set, 100ml each	\$2,475.00	\$335.00
LOE10	LUBRICATING OIL ELEMENTS: Ca, Cl, Cu, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Abbreviated set for ASTM Method, 10 standards per set, 100ml each	\$2,145.00	\$355.00
LOE17	LUBRICATING OIL ELEMENTS: Ca, P, S, Zn	ASTM D6481, 6443, 4927	Engine Oil. 17 standards per set, 100 ml each	\$1,980.00	\$235.00
LOE17A	LUBRICATING OIL ELEMENTS: Ca, Cl, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but also contains Chlorine. 17 standards per set, 100 ml each	\$2,335.00	\$275.00
LOE17A/B	LUBRICATING OIL ELEMENTS: Ba, Ca, Cl, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but also contains Barium and Chlorine. 17 standards per set, 100 ml each	\$2,530.00	\$325.00
LOE17B	LUBRICATING OIL ELEMENTS: Ba, Ca, P,S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but also contains Barium. 17 standards per set, 100 ml each	\$2,365.00	\$275.00
LOE17B/C	LUBRICATING OIL ELEMENTS: Ba, Ca, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but also contains Barium and Magnesium. 17 standards per set, 100 ml each	\$2,530.00	\$325.00
LOE17C	LUBRICATING OIL ELEMENTS: Ca, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but also contains Magnesium. 17 standards per set, 100 ml each	\$2,365.00	\$275.00
LOE22	LUBRICATING OIL ELEMENTS: Ca, Cl, Cu, Mg, P, S, Zn	ASTM D4927	Complete set for the ASTM method D4927. 22 standards per set, 100 ml each	\$2,970.00	\$355.00
LOE23	LUBRICATING OIL ELEMENTS: Ba, Ca, Cl, Cu, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE22, but contains Barium. 23 standards per set, 100 ml each	\$3,190.00	\$400.00
LOEASTM1	LUBRICATING OIL ELEMENTS: Ca, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE17, but slightly different concentration ranges. 17 standards per set, 100 ml each	\$1,980.00	\$325.00
LOEASTM2	LUBRICATING OIL ELEMENTS: Ba, Ca, Cu, Cl, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOE10, but also contains Barium. 10 standards per set, 100 ml each	\$2,420.00	\$400.00
LOEASTM4	LUBRICATING OIL ELEMENTS: Ca, Mg, P, S, Zn	ASTM D6481, 6443, 4927	Same as LOEASTM1, but also contains Magnesium. 17 standards per set, 100 ml each	\$2,365.00	\$325.00

## METAL WORKING FLUIDS STANDARDS- FORMULATED SETS

\*\* see concentration table on page 55

**Table: METAL WORKING FLUIDS**

Product Code	Product	Method	Description	Price per Set
MWFL13	METAL WORKING FLUIDS LUBRICANT CI, P, S		For the analysis of Lubricant Base Metal Working Fluids. 13 standards per set, 100ml each	\$1,485.00

## STABILIZED ORGANO-METALLIC SOLUTIONS

### FORMULATED STANDARD SETS

**LOMS:** Concentrated Liquid Organo-Metallic Solutions ( Stabilized and Ready for Use) These concentrated solutions are stabilized with Analytical Services, Inc. proprietary chelation and stabilization solution, and can be used to formulate sets of standards for the analysis of additive elements in lubricating oils; iron, nickel and vanadium in residual oil, and wear metals in oils for X-Ray Fluorescence Spectroscopy (XRF). These organo-metallic 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 (AA). The starting materials for the standards are ULTRAPURE REAGENTS and have been certified against NIST SRM'S whenever available. **THEY DO NOT CONTAIN PHOSPHORUS OR SULFUR, unless otherwise noted. TRACE IMPURITIES ARE DOCUMENTED ON THE CERTIFICATE OF ANALYSIS.**

**Concentration Table: CONCENTRATED LIQUID ORGANO-METALLIC SOLUTIONS ( STABILIZED AND READY FOR USE)**

Element	Product Code	Conc. Wt%	100 grams	50 grams	25 grams
Aluminum	LOMSAl 3.0	3.00	\$355.00	\$235.00	\$160.00
Antimony	LOMSSb 2.0	2.00	\$245.00	\$165.00	\$110.00
Barium	LOMSBa 12.5	12.50	\$1,100.00	\$715.00	\$495.00
Cadmium	LOMSCd 10.0	10.00	\$1,045.00	\$650.00	\$465.00
Calcium	LOMSCa 5.0	5.00	\$575.00	\$380.00	\$245.00
Cerium	LOMSCe 5.0	5.00	\$575.00	\$380.00	\$245.00
Chromium	LOMSCr 3.50	3.50	\$410.00	\$270.00	\$175.00
Cobalt	LOMSCo 7.5	7.50	\$825.00	\$520.00	\$380.00
Copper	LOMSCu 6.0	6.00	\$715.00	\$465.00	\$310.00
Custom	Price Per Gram		\$210.00	\$135.00	\$115.50
Iron	LOMSFe 4.0	4.00	\$495.00	\$325.00	\$215.00
Lead	LOMSPb 20.0	20.00	\$1,925.00	\$1,155.00	\$825.00
Lithium	LOMSLi 1.5	1.50	\$310.00	\$215.00	\$140.00
Magnesium	LOMSMg 3.0	3.00	\$385.00	\$250.00	\$165.00
Manganese	LOMSMn 6.0	6.00	\$690.00	\$455.00	\$300.00
Molybdenum	LOMSMo 5.0	5.00	\$575.00	\$380.00	\$245.00
Nickel	LOMSNi 5.0	5.00	\$575.00	\$380.00	\$245.00
Phosphorus	LOMSP 5.0	5.00	\$575.00	\$380.00	\$245.00
Potassium	LOMSK 7.5	7.50	\$825.00	\$520.00	\$380.00
Praseodymium	LOMSPr 3.0	3.00	\$410.00	\$220.00	\$160.00
Selenium	LOMSSe 3.5	3.50	\$385.00	\$245.00	\$180.00

Table Continued on Next Page

Element	Product Code	Conc. Wt%	100 grams	50 grams	25 grams
Silicon	LOMSSi 7.5	7.50	\$825.00	\$520.00	\$380.00
Sodium	LOMSNa 2.5	2.50	\$385.00	\$250.00	\$165.00
Strontium	LOMSSr 10.0	10.00	\$1,045.00	\$650.00	\$465.00
Thallium	LOMSTI 5.0	5.00	\$575.00	\$380.00	\$245.00
Tin	LOMSSn 7.5	7.50	\$825.00	\$520.00	\$380.00
Titanium	LOMSTi 5.0	5.00	\$575.00	\$380.00	\$245.00
Vanadium	LOMSV 4.0	4.00	\$495.00	\$325.00	\$215.00
Yttrium	LOMSY 2.5	2.50	\$385.00	\$250.00	\$165.00
Zinc	LOMSZn 6.0	6.00	\$690.00	\$455.00	\$300.00
Zirconium	LOMSZr 5.0	5.00	\$575.00	\$380.00	\$245.00

## STABILIZED ORGANO-METALLIC SOLUTIONS

**ORGM'S DILUTE SINGLE -ELEMENT ORGANO-METALLIC OIL STANDARDS** These standards are sulfur free, unless otherwise noted, organo-metallic standards for X-ray Fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (rotrode), or atomic absorption (AA). They are also stabilized with Analytical Services, Inc. proprietary chelation and solution can be blended together to prepare multi-element standards.

Concentration Table: ORGM'S DILUTE SINGLE-ELEMENT ORGANO-METALLIC OIL STANDARDS

Element	Product Code	Conc. Wt%	100 grams	50 grams
Aluminum	ORGM-AI0.1	0.1000	\$71.50	\$45.00
Aluminum	ORGM-AI0.5	0.5000	\$90.00	\$60.50
Antimony	ORGM-Sb0.1	0.1000	\$71.50	\$45.00
Antimony	ORGM-Sb0.5	0.5000	\$90.00	\$60.50
Arsenic	ORGM-As0.1	0.1000	\$71.50	\$45.00
Arsenic	ORGM-As0.5	0.5000	\$90.00	\$60.50
Barium	ORGM-Ba0.1	0.1000	\$71.50	\$45.00
Barium	ORGM-Ba0.5	0.5000	\$90.00	\$60.50
Beryllium	ORGM-Be0.1	0.1000	\$95.00	\$60.50
Beryllium	ORGM-Be0.5	0.5000	\$160.00	\$105.00
Cadmium	ORGM-Cd0.1	0.1000	\$71.50	\$45.00
Cadmium	ORGM-Cd0.5	0.5000	\$90.00	\$60.50
Calcium	ORGM-Ca0.1	0.1000	\$71.50	\$45.00
Calcium	ORGM-Ca0.5	0.5000	\$90.00	\$60.50
Cerium	ORGM-Ce0.1	0.1000	\$71.50	\$45.00
Cerium	ORGM-Ce0.5	0.5000	\$90.00	\$60.50
Chromium	ORGM-Cr0.1	0.1000	\$71.50	\$45.00
Chromium	ORGM-Cr0.5	0.5000	\$90.00	\$60.50
Cobalt	ORGM-Co0.1	0.1000	\$71.50	\$45.00
Cobalt	ORGM-Co0.5	0.5000	\$90.00	\$60.50
Copper	ORGM-Cu0.1	0.1000	\$71.50	\$45.00
Copper	ORGM-Cu0.5	0.5000	\$90.00	\$60.50
Gallium	ORGM-Ga0.1	0.1000	\$105.00	\$60.50

Table Continued on Next Page



## STABILIZED ORGANO-METALLIC SOLUTIONS INTERNAL STANDARDS

**Table: INTERNAL STANDARDS**

Product Code	Product	Method	Description	Individual (100ml)	Individual (500 ml)	Individual (1 L)
BIIS	BISMUTH INTERNAL STANDARD	ASTM D5059	Pb Analysis; Conc. 0.793g Bi/L, 1 per set	\$95.00	\$220.00	\$385.00
KIS	POTASSIUM IONIZATION SUPPRESSANT	ASTM D4628	1% Potassium in Mineral Oil, 1 per set	\$100.00	\$235.00	\$380.00
MNIS	MANGANESE INTERNAL STANDARD	ISO/CD 14596	Ni and V Analysis; Conc. 0.05%, 1 per set	\$95.00	\$220.00	\$355.00
SNIS	TIN INTERNAL STANDARD		6.0%, 1 per set	\$210.00	\$330.00	\$510.00
ZRIS-1	ZIRCONIUM INTERNAL STANDARD, LOW RANGE	ISO/CD 14597	1% Low Range, Sulfur Analysis, 1 per set	\$45.00	\$200.00	\$335.00
ZRIS-16	ZIRCONIUM INTERNAL STANDARD, HIGH RANGE	ISO/CD 14597	16% High Range, Sulfur Analysis, 1 per set	\$210.00	\$330.00	\$530.00

## WEAR METAL STANDARDS ORGANO-METALLIC

Sulfur Free wear metals in 20cst lubricating oil for analysis by XRF, AA, ICP or AE for applications for which sulfur interference is undesirable. These standards are prepared with Sulfur free ORGANO-METALLICS that do not contain metallic sulfonates.

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

Table: WM-11 Standards

Product Code			Description	Individual (100 ml)	Individual (200 ml)
WM11-10			10.0 ppm	\$100.00	\$105.00
WM11-100			100.0 ppm	\$105.00	\$120.00
WM11-30			30.0 ppm	\$100.00	\$105.00
WM11-300			300.0 ppm	\$130.00	\$225.50
WM11-50			50.0 ppm	\$100.00	\$105.00
WM11-500			500.0 ppm	\$175.00	\$310.00
WM11-900			900.0 ppm	\$205.00	\$380.00

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

Table: WM-12 Standards

Product Code			Description	Individual (100 ml)	Individual (200 ml)
WM12-10			10.0 ppm	\$105.00	\$115.00
WM12-100			100.0 ppm	\$115.00	\$125.00
WM12-30			30.0 ppm	\$105.00	\$115.00
WM12-300			300.0 ppm	\$135.00	\$235.00
WM12-50			50.0 ppm	\$105.00	\$120.00
WM12-500			500.0 ppm	\$180.00	\$325.00
WM12-750			750.0 ppm	\$220.00	\$390.50
WM12-900			900.0 ppm	\$270.00	\$415.00

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

Table: WM-20 Standards

Product Code			Description	Individual (100 ml)	Individual (200 ml)
WM20-10			10.0 ppm	\$115.00	\$115.50
WM20-100			100.0 ppm	\$115.50	\$130.00
WM20-30			30.0 ppm	\$115.00	\$125.00
WM20-300			300.0 ppm	\$160.00	\$290.00
WM20-50			50.0 ppm	\$115.00	\$125.00
WM20-500			500.0 ppm	\$230.00	\$410.00
WM20-900			900.0 ppm	\$355.00	\$640.00

Elements: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn					
Table: WM-21 Standards					
Product Code			Description	Individual (100 ml)	Individual (200 ml)
WM21-10			10.0 ppm	\$115.00	\$115.50
WM21-100			100.0 ppm	\$125.00	\$140.00
WM21-200			200.0 ppm	\$160.00	\$290.00
WM21-30			30.0 ppm	\$115.50	\$130.00
WM21-300			300.0 ppm	\$165.00	\$300.00
WM21-50			50.0 ppm	\$115.50	\$130.00
WM21-500			500.0 ppm	\$235.00	\$430.00
WM21-750			750.0 ppm	\$245.00	\$445.50
WM21-900			900.0 ppm	\$385.00	\$595.00

**A-SERIES of MULTI ELEMENT WEAR METAL STANDARDS FOR ICP, RDE & other TECHNIQUES.**  
 These standards are sulfonated.

Elements: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V and Zn in Hydrocarbon Oil					
Table: A21 Standards					
Product Code			Description	Individual (100 ml) (100ml)	Individual (200 ml) (200ml)
A21-10			10.0 ppm	\$100.00	\$105.00
A21-30			30.0 ppm	\$100.00	\$105.00
A21-50			50.0 ppm	\$105.00	\$115.00
A21-100			100.0 ppm	\$115.00	\$130.00
A21-300			300.0 ppm	\$175.00	\$325.00
A21-500			500.0 ppm	\$260.00	\$465.00
A21-900			900.0 ppm	\$400.00	\$710.00

Elements: All of the elements as the A21 standards plus K					
Table: A22 Standards					
Product Code			Description	Individual (100 ml)	Individual (200 ml)
A22-10			10.0 ppm	\$120.00	\$125.00
A22-30			30.0 ppm	\$125.00	\$125.00
A22-50			50.0 ppm	\$125.00	\$130.00
A22-100			100.0 ppm	\$130.00	\$155.00
A22-300			300.0 ppm	\$205.00	\$350.00
A22-500			500.0 ppm	\$290.00	\$510.00
A22-900			900.0 ppm	\$440.00	\$760.00

<b>Elements: All of the elements as the A21 standards plus K and Sb</b>					
<b>Table: A23 Standards</b>					
<b>Product Code</b>			<b>Description</b>	<b>Individual (100 ml)</b>	<b>Individual (200 ml)</b>
A23-10			10.0 ppm	\$135.00	\$140.00
A23-30			30.0 ppm	\$135.00	\$140.00
A23-50			50.0 ppm	\$140.00	\$150.00
A23-100			100.0 ppm	\$150.00	\$170.00
A23-300			300.0 ppm	\$215.00	\$375.00
A23-500			500.0 ppm	\$305.00	\$530.00
A23-900			900.0 ppm	\$465.00	\$800.00

<b>REAGENTS</b>			
<b>Dibenzothiophene, 17.13% Sulfur, (Solid)</b>			
<b>Product Code</b>	<b>Individual (25 grams)</b>	<b>Individual (50 grams)</b>	<b>Individual (100 grams)</b>
DB	\$165.00	\$245.00	\$385.00

<b>Di-N-Butyl Sulfide Certified Reagent, 21.9 wt%</b>			
<b>Product Code</b>	<b>Individual (100 ml)</b>	<b>Individual (200 ml)</b>	<b>Individual (500 ml)</b>
DBS	\$275.00	\$395.00	\$560.00

<b>Benzothiophene (Thianaphthene), 23.4%</b>			
<b>Product Code</b>	<b>Individual (25 grams)</b>	<b>Individual (50 grams)</b>	<b>Individual (100 grams)</b>
TNA	\$245.00	\$385.00	\$605.00

## MATRIX OILS

**Table: MATRIX OILS**

Product Code	Product	Method	Description	Individual (1/2 Gallon)	Individual (1 Liter)
GM	GASOLINE MATRIX		Gasoline with low level of sulfur	\$380.00	\$205.00
HVMO75	HIGH VISCOSITY MINERAL OIL		Hydrotreated 350N <1.0 ppm Sulfur	\$90.00	\$55.00
LVMO4.5	LOW VISCOSITY MINERAL OIL		Odorless and water white: flashpoint >200 degrees F Viscosity at 100 degrees F -2.68 cSt: <1ppm Sulfur	\$90.00	\$55.00
MVMO25	MEDIUM VISCOSITY MINERAL OIL		Hydrotreated 100N <1ppm Sulfur -25 cSt	\$90.00	\$55.00
RFO	RESIDUAL FUEL OIL		Asphaltic Residual diluted with 100N; Sulfur concentration about 0.25%	\$380.00	\$205.00
SDFM	SYNTHETIC DIESEL FUEL		Mixture of aromatic solvent and low viscosity mineral oil <1ppm Sulfur	\$77.00	\$50.00
TLM	CERTIFIED TOLUENE MATRIX		Toluene that has been certified for Nitrogen and Sulfur. The values will appear on the Certificate of Analysis	\$380.00	\$205.00

## STABILIZATION SOLUTIONS

**Table: STABILIZATION SOLUTIONS**

Product Code	Product	Method	Description	Individual (100 ml)	Individual (50 ml)
STAB SOLN A	STABILIZATION SOLUTION		For chelating and solubilizing organo-metallic solids and solutions for single element and multi-element standards	\$120.00	\$71.50
STAB SOLN B	STABILIZATION SOLUTION		Used in conjunction with STAB SOLN A	\$120.00	\$71.50
STAB SOLN C	STABILIZATION SOLUTION		Same as STAB SOLN A	\$120.00	\$71.50

<b>NITROGEN IN SOLID POLYMER</b>		
<b>NITROGEN IN SOLID POLYMER</b> Finely divided synthetic polymer solid that contains a certified amount of nitrogen. Used for calibrating instruments for the analysis of nitrogen in all types of polymers and other solids that are completely combustible. <b>Concentration Range: 0-3.0wt% Nitrogen</b>		
<b>Table: NITROGEN IN SOLID POLYMER</b>		
<b>Product Code</b>	<b>Individual (10 grams)</b>	<b>Individual (50 grams)</b>
NP	\$105.00	\$285.00

<b>NITROGEN IN SOLID POLYMER</b>		
<b>NITROGEN IN SOLID POLYMER</b> Finely divided synthetic polymer solid that contains a certified amount of nitrogen. Used for calibrating instruments for the analysis of nitrogen in all types of polymers and other solids that are completely combustible. <b>Concentration Range: 0-1.0wt% of Nitrogen &amp; Sulfur</b>		
<b>Table: NITROGEN IN SOLID POLYMER</b>		
<b>Product Code</b>	<b>Individual (10 grams)</b>	<b>Individual (50 grams)</b>
NSSP	\$160.00	\$450.00

<b>STANDARDS FOR PE ANALYSIS</b>			
** see concentration tables on page 56			
<b>RoHS/WEEE compliant polymer standards in powder form for analysis of materials in polyethylene (PE). Available in 25 grams or 50 grams. 1 Quality Control Sample comes with the 9 standard sets only.</b>			
<b>Table: PE POWDERS</b>			
<b>Product Code</b>		<b>Description</b>	<b>Price per Set</b>
PL(PE)3-5E(P)		25 Grams each	\$660.00
PL(PE)3-5E(P)		50 Grams each	\$1,045.00
PL(PE)9-5E(P)		25 Grams each	\$1,760.00
PL(PE)9-5E(P)		50 Grams each	\$2,750.00

<b>Additional QC Samples</b>		
	<b>Description</b>	<b>Individual</b>
	100 Grams each	\$413.00
	250 Grams each	\$798.00
	500 Grams each	\$1,100.00

RoHS/WEEE compliant polymer standards in disc form for analysis of materials in polyethylene (PE). Available in 40 mm x 10mm or 31 mm x 10 mm disc. 1 Quality Control Sample comes with the 9 standard sets only.

Table: PE DISC		
Product Code	Description	Price per Set
PL(PE)3-5E(D)	31 or 40mm disc	\$660.00
PL(PE)9-5E(D)	31 or 40mm disc	\$1,760.00

**STANDARDS FOR PVC ANALYSIS**  
 \*\* see concentration tables on page 56

RoHS/WEEE compliant polymer standards in powder form for analysis of materials in polyvinylchloride (PVC). PVC's also include some Ca and Cl in each sample. Available in 25 grams or 50 grams. 1 Quality Control Sample comes with the 9 standard sets only.

Table: PVC POWDERS			
Product Code		Description	Price per Set
PL(PVC)3-5E(P)		25 grams each	\$715.00
PL(PVC)3-5E(P)		50 grams each	\$1,100.00
PL(PVC)9-5E(P)		25 grams each	\$1,925.00
PL(PVC)9-5E(P)		50 grams each	\$2,915.00

Additional QC Samples	
Description	Individual
100 Grams each	\$440.00
250 Grams each	\$875.00
500 Grams each	\$1,210.00

**PVC DISCS**  
 RoHS/WEEE compliant polymer standards in disc form for analysis of materials in polyvinylchloride (PVC). Available in 40mm x 10mm (Chemplex® XRF Sample Cups, Cat. No. 1340) or 31mm x 10mm (Chemplex® XRF Sample Cup, Cat. No. 1330). 1 Quality Control Sample comes with the 9 standard sets only. Discs are supplied with the same concentrations as the PVC Powders.

Table: PVC Disc			
Product Code		Description	Price per Set
PL(PVC)3-5E(D)		31mm disc	\$660.00
PL(PVC)3-5E(D)		40mm disc	\$1,100.00
PL(PVC)9-5E(D)		31mm disc	\$1,925.00
PL(PVC)9-5E(D)		40mm disc	\$1,925.00

**Note:** We also have a PE Additive Package that includes 5 standards with 10 elements each. The elements included are Al, Ca, F, Mg, Na, P, S, Si, Ti and Zn.

**MONITOR SAMPLES FOR XRF - SILICATE GLASSES - SINGLE ELEMENTS**

Optically polished on the analytical surface; size 30 - 40mm in diameter and 5mm in height.

**Table: SINGLE ELEMENTS**

Product Code	Product		Description	Individual (40 mm)	Individual (Other Sizes)
GL-CL	Chlorine		Chlorine Conc. 0.6wt%	\$300.00	\$325.00
GL-S(HL)	Sulfur (HL)		High Level Sulfur; approx. 0.70 wt%	\$300.00	\$325.00
GL-S(LL)	Sulfur (LL)		Low level of Sulfur; approx. 0.005wt%	\$300.00	\$325.00
GL-S(ML)	Sulfur (ML)		Mid level of Sulfur; approx. 0.050wt%	\$300.00	\$325.00

**MONITOR SAMPLES FOR XRF - SILICATE GLASSES - MULTI ELEMENTS**

\*\* see concentration table on page 57

Optically polished on the analytical surface; size 30 - 40mm in diameter and 5mm in height.

**Table: Multi-Elements**

Product Code	Individual (40 mm)	Individual (Other Sizes)
GL-LOE1	\$300.00	\$325.00
GL-LOE2	\$300.00	\$325.00
GL-LOE3	\$300.00	\$325.00

## PHYSICAL TESTING STANDARDS

### ASTM D97 Pour Point Standards

Pour Points are determined by consensus analysis. Standards are packaged in 250ml bottles.

Table: ASTM D97 Pour Point Standards

Product Code	Approx. Pour Point	Individual
PP5	-05 C	\$147.00
PP10	-10 C	\$147.00
PP15	-15 C	\$147.00
PP20	-20 C	\$147.00
PP40	-40 C	\$147.00
PP50	-50 C	\$147.00

### ASTM D2386 Freezing Point Standards

Standards are packaged in 250ml amber bottles and verified by consensus analysis.

Table: ASTM D2368 Freezing Point Standards

Product Code	Nominal Freeze Point	Individual
FPZ 45	-45 C	\$143.50
FPZ 50	-50 C	\$143.50

### ASTM D2500 Cloud Point Standards

Cloud Points are determined by consensus analysis. Standards are packaged in 250ml bottles.

Table: ASTM D2500 Cloud Point Standards

Product Code	Approx. Cloud Point	Individual
CP5	+5 C	\$143.50
CP2	-2 C	\$143.50
CP10	-10 C	\$143.50
CP15	-15 C	\$143.50
CP20	-20 C	\$143.50

<b>ASTM D445 Viscosity Standards</b>		
Oils are tested in accordance with ASTM D445 and are packaged in 500ml amber glass bottles.		
<b>Table: ASTM D445 Viscosity Standards</b>		
<b>Product Code</b>	<b>Viscosity @ 40C</b>	<b>Individual</b>
VIS110	110 cSt	\$67.50
VIS60	54 cSt	\$67.50
VIS10	9.5 cSt	\$67.50
VIS130	130 cSt	\$67.50
VIS100	102 cSt	\$67.50
VIS30	30 cSt	\$67.50
VIS300	300 cSt	\$67.50
VIS4	4 cSt	\$78.00
VIS520	520 cSt	\$67.50
VIS920	920 cSt	\$67.50

<b>ASTM D5482/D5191 Vapor Pressure Standards</b>		
Analytical Services, Inc. offers a range of vapor pressure quality control samples for ASTM D5482 and D5191 (mini-methods), consisting of pure solvents of known vapor pressure. The samples are packaged in 10ml flame sealed ampoules.		
<b>Table: ASTM D5482/D5191 Vapor Pressure Standards</b>		
<b>Product Code</b>	<b>Vapor Pressure</b>	<b>Individual (Set of 10)</b>
VP1	68.3 kPa (9.91 p.s.i)	\$82.50
VP2	68.0 kPa (9.86 p.s.i)	\$100.00
VP3	51.1 kPa (7.41 p.s.i)	\$95.00
VP4	46.7 kPa (6.77 p.s.i)	\$155.00
VP5	22.5 kPa (3.26 p.s.i)	\$71.50
VP6	7.1 kPa (1.03 p.s.i)	\$71.50

<b>ASTM D56 Tag Closed Cup Flash Point</b>		
Standards are packaged in 150ml amber glass bottles and verified by consensus analysis.		
<b>Table: ASTM D56 Tag Closed Cup Flash Point</b>		
<b>Product Code</b>	<b>Nominal Flash Point</b>	<b>Individual</b>
TCC68	67 C	\$205.00

<b>ASTM D86 Group 4 Distillation Standard</b>		
The group 4 standard is diesel oil characterized with distillation range is from 410 to 670°F, (210 to 355°C) and was verified by consensus analysis.		
<b>Table: ASTM D86 Group 4 Distillation Standard</b>		
<b>Product Code</b>	<b>Description</b>	<b>Individual</b>
D86-4-1	Distillation Standard 0.25L	\$185.00
D86-4-2	Distillation Standard 0.50L	\$340.00

**ASTM D86 Synthetic Distillation Standard**  
 The automatic distillation apparatus duplicated the distillation conditions of the manual method. The increased reliance on electronic control requires an independent standard to verify that the apparatus is performing correctly. Analytical Services, Inc. has introduced a synthetic blend of hydrocarbons that boil in the temperature range specified in ASTM D86 distillation groups 1 and 2. The group 1 and 2 standard covers the boiling range 129 to 368°F, (54 to 187°C) and was verified by consensus analysis with twelve refinery laboratories.

**Table: ASTM D86 Synthetic Distillation Standard**

Product Code	Description	Individual
D86-1	Synthetic Distillation Std. 0.5L	\$190.50
D86-2	Synthetic Distillation Std. 2 x 0.5L	\$340.00
D86-3	Synthetic Distillation Std 4 x 0.5L	\$1,100.00

**ASTM D92 Cleveland Open Cup Flash Point**  
 Standards are packaged in 250ml amber glass bottles and verified by consensus analysis.

**Table: ASTM D92 Cleveland Open Cup Flash Point**

Product Code	Flash Point	Individual
FP200	200 C	\$143.50
FP230	230 C	\$143.50

**ASTM D93 Pensky Martin Flash Point**  
 Standards are packaged in 250ml amber glass bottles and verified by consensus analysis.

**Table: ASTM D93 Pensky Martin Flash Point**

Product Code	Flash Point	Individual
FP60	65 C	\$143.50
FP93	93 C	\$143.50

**Certified Flash Point Standards**  
 These reference materials are stable, pure hydrocarbon with a method specific flash point determined by an inter-laboratory study. Standards are packaged in 250ml bottles.

**Table: Certified Flash Point Standards**

Product Code	Method	Flash Point	Individual
FP93	ASTM D93	93 C	\$143.50
FP65	ASTM D93	65 C	\$115.50
FP134 HEX	ASTM D93	134 C	\$170.00
FP67UD	ASTM D56	67 C	\$221.00
FP75		75 C	\$150.00

## NITROGEN AND SULFUR AMPUOLES

**Table: NITROGEN AND SULFUR IN PETROLEUM PRODUCTS**

Product Code	Product	Method	Description	Price per Set
A-NS(H)	NITROGEN AND SULFUR IN PETROLEUM PRODUCTS. SULFUR BY ULTRAVIOLET FLUORESCENCE AND NITROGEN BY CHEMILUMINESCENCE. FLAMMABLE UN1262	N/D5762 & S/D5453	Dibenzothiophene (S) and Pyridine (N) in Isooctane package in 2 ml amber pre-scored ampoules. Concentrations are Blk, 100, 500, 1000 ng/ul	\$82.50
A-NS(L)	NITROGEN AND SULFUR IN PETROLEUM PRODUCTS. SULFUR BY ULTRAVIOLET FLUORESCENCE AND NITROGEN BY CHEMILUMINESCENCE. FLAMMABLE UN1262	N/D5762 & S/D5453	Dibenzothiophene (S) and Pyridine (N) in Isooctane packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 0.25, 0.5, 1.0, 2.5, 5.0 ng/ul	\$105.00
A-NS(M)	NITROGEN AND SULFUR IN PETROLEUM PRODUCTS. SULFUR BY ULTRAVIOLET FLUORESCENCE AND NITROGEN BY CHEMILUMINESCENCE. FLAMMABLE UN1262	N/D5762 & S/D5453	Dibenzothiophene (S) and Pyridine (N) in Isooctane packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 5.0, 25, 50, 100 ng/ul	\$90.00

## NITROGEN AND SULFUR AMPUOLES

**Table: NITROGEN IN PETROLEUM PRODUCTS**

Product Code	Product	Method	Description	Price per Set
A4629(1)	NITROGEN IN PETROLEUM PRODUCTS BY SYRINGE-INLET CHEMILUMINESCENCE. FLAMMABLE UN1262	ASTM D4629	Pyridine in Isooctane packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 0.25, 0.5, 1.0, 2.5, 5.0 mg/kg	\$95.00
A4629(2)	NITROGEN IN PETROLEUM PRODUCTS BY SYRINGE-INLET CHEMILUMINESCENCE. FLAMMABLE UN1262	ASTM D4629	Pyridine in Isooctane packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 5.0, 25, 50, 100 mg/kg	\$77.00
A5762	NITROGEN IN PETROLEUM PRODUCTS BY BOAT-INLET CHEMILUMINESCENCE. FLAMMABLE UN1307	ASTM D5762	Acridine in Xylene packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 100, 500, 1000mg/kg	\$71.50

<b>NITROGEN AND SULFUR AMPUOLES</b>				
<b>Table: SULFUR IN PETROLEUM PRODUCTS</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
A3120-6	DETERMINATION OF SULFUR IN PETROLEUM HYDROCARBONS BY OXIDATIVE MICROCOULOMETRY. FLAMMABLE UN1262	ASTM D3120	Di-N-butyl sulfide in Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 1, 10, 25, 50, 100 mg/kg.	\$95.00
A3246-6	DETERMINATION OF SULFUR IN PETROLEUM HYDROCARBONS BY OXIDATIVE MICROCOULOMETRY. FLAMMABLE UN1262	ASTM D3246	Di-N-butyl sulfide in Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 1, 10, 25, 50, 100 mg/kg.	\$95.00
A3961-6	DETERMINATION OF SULFUR IN PETROLEUM HYDROCARBONS BY OXIDATIVE MICROCOULOMETRY. FLAMMABLE UN1262	ASTM D3961	Di-N-butyl sulfide in Toluene matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 1, 10, 25, 50, 100 mg/kg.	\$95.00
A5453(H)	SULFUR IN LIQUID PETROLEUM HYDROCARBONS BY ULTRAVIOLET FLUORESCENCE. FLAMMABLE UN1262 OR UN1294	ASTM D5453	Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 100, 250, 500, 750, 1000ng/uL. Please specify matrix.	\$95.00
A5453(L)	SULFUR IN LIQUID PETROLEUM HYDROCARBONS BY ULTRAVIOLET FLUORESCENCE. FLAMMABLE UN1262 OR UN1294	ASTM D5453	Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 1, 2.5, 5, 7.5, 10ng/uL. Please specify matrix.	\$95.00
A5453(M)	SULFUR IN LIQUID PETROLEUM HYDROCARBONS BY ULTRAVIOLET FLUORESCENCE. FLAMMABLE UN1262 OR UN1294	ASTM D5453	Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are Blk, 5, 25, 50, 100, 200ng/uL. Please specify matrix.	\$95.00
A5453(T)	SULFUR IN LIQUID PETROLEUM HYDROCARBONS BY ULTRAVIOLET FLUORESCENCE. FLAMMABLE UN1262 OR UN1294	ASTM D5453	Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Concentrations are from the M, L, and H ranges. Please specify matrix.	\$225.50
A5453CK	SULFUR IN LIQUID PETROLEUM HYDROCARBONS BY ULTRAVIOLET FLUORESCENCE. FLAMMABLE UN1262 OR UN1294	ASTM D5453	Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Daily Calibration Check Sample. Specify concentration and matrix - 10 ampoules in set	\$82.50
ASOM(CK)	DETERMINATION OF SULFUR IN PETROLEUM HYDROCARBONS BY OXIDATIVE MICROCOULOMETRY. FLAMMABLE UN1262 OR UN1294		Di-N-butyl sulfide in Toluene or Isooctane matrix packaged in 2 ml amber pre-scored ampoules. Daily Calibration Check Sample. Specify concentration and matrix - 10 ampoules in set	\$77.00

<b>HYDROGEN SULFIDE AND MERCAPTAN STANDARDS</b>		
<b>AMPOULES FOR TITRATION ANALYSIS</b>		
<b>20ppm H<sub>2</sub>S and 40ppm Mercaptan</b>		
<b>Table: 20ml Prices</b>		
<b>Product Code</b>	<b>Individual (each)</b>	<b>Individual (5 ampoules)</b>
H2SRSH-20	\$50.00	\$190.50

<b>Table: 2ml Prices</b>		
<b>Product Code</b>	<b>Individual (each)</b>	<b>Individual (5 ampoules)</b>
H2SRSH-2	\$27.50	\$105.00

<b>TITRATION STANDARDS</b>				
** see concentration tables on page 57				

<b>BROMINE INDEX FOR ASTM D2710</b>				
<b>Table: BROMINE INDEX</b>				
<b>Product Code</b>	<b>Product</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (200ml)</b>
BRI3	BROMINE INDEX STANDARD FLAMMABLE UN 1294	Bromine Index in Toluene; 3 per set, 200ml each	\$200.00	\$71.50

<b>BROMINE NUMBER FOR ASTM D1159</b>				
<b>Table: BROMINE NUMBER FOR ASTM D1159</b>				
<b>Product Code</b>	<b>Product</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (200ml)</b>
BrNo2	BROMINE NUMBER STANDARDS FLAMMABLE UN1294	Bromine number in Toluene: 2 per set, 200ml each	\$185.00	\$105.00

<b>TOTAL ACID NUMBER FOR ASTM D664</b>				
<b>Table: TOTAL ACID NUMBER STANDARDS</b>				
<b>Product Code</b>	<b>Product</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (500ml)</b>
TAN2	TOTAL ACID NUMBER STANDARDS	TAN in Mineral Oil, 2 per set; 500ml each	\$71.50	\$40.00

<b>BASE NUMBER FOR ASTM D2896 &amp; D5984</b>				
<b>Table: TOTAL BASE NUMBER STANDARDS</b>				
<b>Product Code</b>	<b>Product</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual (200 ml)</b>
BN03	TOTAL BASE NUMBER STANDARD	Total Base Number in Mineral Oil, 500ml each	\$190.50	\$71.50

## NITROGEN BASES IN HYDROCARBONS

Table: NITROGEN BASES IN HYDROCARBONS

Product Code	Product	Method	Description	Price per Set	Individual (200 ml)
N-UOP269	Organic Nitrogen in Petroleum Distillates	UOP269-90	Organic Nitrogen in Petroleum Distillates, Conc: .01, .05, 0.10, 1.0wt%,; 4 standards per set, 200ml each	\$285.00	\$71.50

**LEAD STANDARDS IN PAINT COATINGS ON POLYESTER FILM**

**Table: LEAD IN PAINT**

<b>Product Code</b>	<b>Product</b>	<b>Description</b>	<b>Price per Set</b>	<b>Individual</b>
Pb-PEF7	Pb & Paint Coatings on Polyester Film	7 standards cut as squares per set, Conc: 0.000, 0.375, 0.750, 2.000, 5.500, 12.00, 0.800ug/cm2 For proposed ASTM Wk	\$950.00	\$225.00

## BIODIESEL TESTING STANDARDS

**Table: SULFUR IN BIODIESEL**

Product Code	Product	Method	Description	Price per Set
S(BIO)6L	DBS in Biodiesel	ASTM D5453	Low Range: 6 standards per set, 100ml each - Conc. 0, 5, 10, 15, 20 and 25ppm	\$385.00
S(BIO)6H	DBS in Biodiesel	ASTM D5453	High Range: 6 standards per set, 100ml each - Conc. 0, 200, 400, 600, 800 and 1000ppm	\$395.00

## BIODIESEL TESTING STANDARDS

**Table: FREE AND TOTAL GLYCERIN**

Product Code	Product	Method	Description	Price per Set
D6584-MIX	Combined Standards	ASTM D6584 or DIN EN14105	Kit Contains: 4 standards containing the 4 glycerin components in pyridine -5ml ampoule each - 1 standard of butanetriol internal standard at 1000ng/uL in pyridine - 5ml ampoule - 1 standard of tricaprin internal standard at 8000ng/uL in pyridine- 5ml ampoule - 1 vial of MSTFA silyating reagent - 5ml vial with cap - 1 bottle of heptane in 250ml	\$600.00
D6584-SS	Individual Standards	ASTM D6584 or DIN EN14105	Kit Contains: 1 standard of glycerin in pyridine at 500ng/ul, 1 standard of monoolein in pyridine at 5000ng/uL, 1 standard of dialen in pyridine at 500ng/uL, 1 standard of 1,2,3-Tri{cis-octadecanoyl} in pyridine at 5000ng/uL, 1 standard of butanetriol internal standard at 1000ng/uL in pyridine, 1 standard of tricaprin internal standard at 8000ng/uL in pyridine, 1 vial of MSTFA all in 5ml ampoules or vial and 1 bottle of heptane at 250ml	\$550.00
D6584-50kit	Individual Standards	ASTM D6584 or DIN EN14105	Enough for 50 GC runs, Internal Standard #1 and 2 and MSTFA all in 5ml ampoules	\$375.00
D6584-100kit	Individual Standards	ASTM D6584 or DIN EN14105	Enough for 100 GC runs, Internal Standard #1 and 2 and MSTFA all in 10ml ampoules	\$400.00
D6584-250kit	Individual Standards	ASTM D6584 or DIN EN14105	Enough for 250 GC runs, Internal Standard #1 and 2 and MSTFA all in 25ml ampoules	\$425.00
D6584-500kit	Individual Standards	ASTM D6584 or DIN EN14105	Enough for 500 GC runs, Internal Standard #1 and 2 and MSTFA all in 50ml amber bottles	\$450.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Sodium &amp; Potassium UOP 391 or DIN EN14538</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
UOP391	Calibration Standard	UOP391 or DIN EN14538	Na and K at 100ppm each in 100ml amber bottle	\$140.00
UOP389	Calibration Standard	UOP391 or DIN EN14538	Ca and Mg at 100ppm each in 100ml amber bottle	\$140.00
EN14538	Calibration Standard	UOP391 or DIN EN14538	Multi Elements standard containing Ca, Mg, K and Na at 500ppm each in 100mls amber bottle	\$195.00
EN14538-2C	Calibration Standard	UOP391 or DIN EN14538	Multi Elements standard containing Ca, Mg, K, P and Na at 20ppm and 100ppm, 2 standards per set: each in 100mls amber bottle	\$270.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Simulated Distillation</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
D2887	Diesel Reference Fuel	ASTM D2887	6x2ml ampoules per set	\$105.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Methanol in FAME</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
EN14110	Methanol in FAME	DIN EN14110	3 standards per set and 20ml ampoule of 2-propanol	\$125.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Fatty acid methyl esters (FAME) Analysis</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
EN14103	Fatty acid methyl esters (FAME) Analysis	DIN EN14103	3 x 2ml ampoules	\$205.00
EN14103-IS	Fatty acid methyl esters (FAME) Analysis	DIN EN14103	Methylheptadecanoate in Heptanes, 1 per set, 100ml each	\$85.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Iodine Value</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
EN14214	Iodine Value	DIN EN14214	Iodine Number 50 and 200, 500ml each	\$190.00

<b>BIODIESEL TESTING STANDARDS</b>				
<b>Table: Hexane Residue in Fats and Oil</b>				
<b>Product Code</b>	<b>Product</b>	<b>Method</b>	<b>Description</b>	<b>Price per Set</b>
HexMe05	Hexane Residue in Fats and Oil	ACOS method CA 36-87	Six standards of Hexane in Methyloleate: Conc. Blk, 10, 100, 500 and 1,500mg/kg in 20ml ampoules and a 20ml ampoule of Heptane(internal standard)	\$275.00

# CONCENTRATION TABLES

<b>SULFUR STANDARDS- FORMULATED SETS</b>	
Concentration Table: S(BS)I13	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0010
3	0.0020
4	0.0030
5	0.0050
6	0.0100
7	0.0200
8	0.0300
9	0.0400
10	0.0600
11	0.1000
12	0.2000
13	0.3000

Concentration Table: S(BS)IT10	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0005
3	0.0010
4	0.0030
5	0.0050
6	0.0075
7	0.0100
8	0.0300
9	0.0500
10	0.1000

Concentration Table: S(T)IT10	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0005
3	0.0010
4	0.0030
5	0.0050
6	0.0075
7	0.0100
8	0.0300
9	0.0500
10	0.1000

Concentration Table: SCO10	
Standard No.	Sulfur, Wt %
1	0.0800
2	0.1000
3	0.2500
4	0.5000
5	1.0000
6	1.5000
7	2.0000
8	3.0000
9	4.0000
10	5.0000

Concentration Table: SCO7	
Standard No.	Sulfur, Wt %
1	0.0800
2	0.1000
3	0.2500
4	0.5000
5	1.0000
6	1.5000
7	2.0000

Concentration Table: SDF10	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.1000
3	0.2500
4	0.5000
5	1.0000
6	1.5000
7	2.0000
8	3.0000
9	4.0000
10	5.0000

Concentration Table: SDF7	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0200
3	0.0400
4	0.0500
5	0.0600
6	0.0800
7	0.1000

Concentration Table: SIO11	
Standard No.	Sulfur, ng/uL
1	0.0000
2	0.5000
3	1.0000
4	2.5000
5	5.0000
6	10.000
7	25.000
8	50.000
9	100.00
10	500.00
11	1000.0

Concentration Table: SIO3(H)	
Standard No.	Sulfur, ng/uL
1	100.00
2	500.00
3	1000.0

Concentration Table: SIO4(M)	
Standard No.	Sulfur, ng/uL
1	5.00
2	25.00
3	50.00
4	100.00

Concentration Table: SIO6(L)	
Standard No.	Sulfur, ng/uL
1	0.0000
2	0.5000
3	1.0000
4	2.5000
5	5.0000
6	10.000

Concentration Table: SISOH7	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.4000
3	0.7000
4	1.0000
5	1.5000
6	2.0000
7	2.5000

Concentration Table: SISOL8	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0010
3	0.0050
4	0.0100
5	0.0250
6	0.0500
7	0.0750
8	0.1000

Concentration Table: SITCS5(H)	
Standard No.	Sulfur, Wt %
1	0.0200
2	0.0350
3	0.0500
4	0.0750
5	0.1000

Concentration Table: SITCS5(L)	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0010
3	0.0050
4	0.0100
5	0.0200

Concentration Table: SITCS9	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0010
3	0.0050
4	0.0100
5	0.0200
6	0.0350
7	0.0500
8	0.0750
9	0.1000

Concentration Table: SMO10	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0025
3	0.0050
4	0.0100
5	0.0200
6	0.0400
7	0.0500
8	0.0600
9	0.0800
10	0.1000

Concentration Table: SMO10(HL)	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.1000
3	0.2000
4	0.5000
5	0.7500
6	1.0000
7	2.0000
8	3.0000
9	4.0000
10	5.0000

Concentration Table: SMO11	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0020
3	0.0050
4	0.0100
5	0.0300
6	0.0600
7	0.1000
8	0.5000
9	1.0000
10	2.5000
11	5.0000

Concentration Table: SMO6H	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.1000
3	0.5000
4	1.0000
5	2.5000
6	5.0000

Concentration Table: SMO7L	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0020
3	0.0050
4	0.0100
5	0.0300
6	0.0600
7	0.1000

Concentration Table: SMOCS10	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0100
3	0.0300
4	0.0500
5	0.0700
6	0.1000
7	0.2000
8	0.3000
9	0.4000
10	0.5000

Concentration Table: SMOCS5(H)	
Standard No.	Sulfur, Wt %
1	0.1000
2	0.2000
3	0.3000
4	0.4000
5	0.5000

Concentration Table: SMOCS6(L)	
Standard No.	Sulfur, Wt %
1	0.0000
2	0.0100
3	0.0300
4	0.0500
5	0.0700
6	0.1000

Concentration Table: SRO10	
Standard No.	Sulfur, Wt %
1	0.2500
2	0.5000
3	1.0000
4	1.5000
5	2.0000
6	2.5000
7	3.0000
8	3.5000
9	4.0000
10	5.0000

<b>SULFUR AND METALS IN OIL- FORMULATED SETS</b>				
Concentration Table: SFNVMO12				
Standard No.	Sulfur Wt %	Iron (ppm)	Nickel (ppm)	Vanadium (ppm)
1	0.0000	0	0	0
2	0.5000	300	10	500
3	1.0000	500	100	25
4	0.0000	100	80	250
5	2.0000	200	40	100
6	2.5000	400	5	400
7	3.0000	0	60	300
8	3.5000	500	0	200
9	0.0000	100	100	0
10	4.5000	300	50	250
11	5.0000	200	20	500
12	5.5000	50	100	50

Concentration Table: SFNVR012				
Standard No.	Sulfur	Iron	Nickel	Vanadium
	Wt %	(ppm)	(ppm)	(ppm)
1	0.1850	1	4	13
2	0.5000	300	10	500
3	1.0000	500	100	25
4	0.0000	100	80	250
5	2.0000	200	40	100
6	2.5000	400	5	400
7	3.0000	1	60	300
8	3.5000	500	4	200
9	0.0000	100	100	13
10	4.5000	300	50	250
11	5.0000	200	20	500
12	5.5000	50	100	50

Concentration Table: SNVMO12			
Standard No.	Sulfur	Nickel	Vanadium
	Wt %	(ppm)	(ppm)
1	0.0000	0	0
2	0.5000	10	500
3	1.0000	100	25
4	1.5000	80	250
5	2.0000	40	100
6	2.5000	5	400
7	3.0000	60	300
8	3.5000	0	200
9	4.0000	100	0
10	4.5000	50	250
11	5.0000	20	500
12	5.5000	100	50

Concentration Table: SNVRO12			
Standard No.	Sulfur	Nickel	Vanadium
	Wt %	(ppm)	(ppm)
1	0.1850	4	1
2	0.5000	10	500
3	1.0000	100	25
4	1.5000	80	250
5	2.0000	40	100
6	2.5000	5	400
7	3.0000	60	300
8	3.5000	4	200
9	4.0000	100	1
10	4.5000	50	250
11	5.0000	20	500
12	5.5000	100	50

CHLORINE STANDARDS IN WASTE OIL- FORMULATED SETS	
Concentration Table: CLWO7	
Standard No.	Chlorine, Wt %
1	0.0500
2	0.2000
3	0.4000
4	0.5000
5	0.6000
6	0.8000
7	1.0000

CHLORINE AND SULFUR STANDARDS IN MINERAL OIL- FORMULATED SETS		
Concentration Table: CLSMO10		
Standard No.	Sulfur wt%	Chlorine wt%
1	0.0000	0.0000
2	0.1000	0.8000
3	0.6000	0.5000
4	0.2000	0.3000
5	0.7000	0.2000
6	0.3000	0.6000
7	0.4000	0.1000
8	0.5000	0.4000
9	0.8000	1.0000
10	1.0000	0.0000

Concentration Table: CLSWO10		
Standard No.	Sulfur wt%	Chlorine wt%
1	0.5000	1.0000
2	2.5000	0.0200
3	0.5000	0.6500
4	1.0000	0.2000
5	1.5000	0.5000
6	1.7500	0.8000
7	1.2500	0.0500
8	2.0000	1.0000
9	2.2500	0.3800
10	0.7500	0.1000

LEAD STANDARDS IN VARIOUS MATRICES- FORMULATED SETS	
Concentration Table: PBG7A	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.100
3	1.000
4	2.000
5	3.000
6	4.000
7	5.000

Concentration Table: PBG7C	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.001
3	0.005
4	0.010
5	0.050
6	0.100
7	0.300

Concentration Table: PBIO7A	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.100
3	1.000
4	2.000
5	3.000
6	4.000
7	5.000

Concentration Table: PBIO7C	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.001
3	0.005
4	0.010
5	0.050
6	0.100
7	0.300

Concentration Table: PBT7A	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.100
3	1.000
4	2.000
5	3.000
6	4.000
7	5.000

Concentration Table: PBT7C	
Standard No.	Lead, Gms/Gal.
1	0.000
2	0.001
3	0.005
4	0.010
5	0.050
6	0.100
7	0.300

<b>NICKEL STANDARDS WITH MANGANESE INTERNAL STANDARD-FORMULATED SETS</b>	
Concentration Table: NiISO7	
Standard No.	Wt % Ni
1	0.0000
2	0.0005
3	0.0010
4	0.0025
5	0.0050
6	0.0070
7	0.0100

Concentration Table: VISOH7	
Standard No.	Wt% V
1	0.0000
2	0.0300
3	0.0400
4	0.0500
5	0.0600
6	0.0800
7	0.1000

Concentration Table: VISOL9	
Standard No.	Wt% V
1	0.0005
2	0.0025
3	0.0050
4	0.0075
5	0.0100
6	0.0125
7	0.0150
8	0.0175
9	0.0200

LUBRICATING OIL STANDARDS- FORMULATED SETS				
Concentration Table: LOA11				
Standard No.	Wt% Ca	Wt% P	Wt% S	Wt% Zn
1	0.5000	1.0000	0.5000	0.5000
2	2.5000	1.0000	2.5000	2.0000
3	2.0000	1.2500	1.0000	1.5000
4	5.0000	0.0000	0.0000	0.0000
5	4.0000	0.5000	1.2500	0.5000
6	2.5120	0.7500	4.0000	1.0000
7	4.0000	0.0000	1.5000	1.0000
8	0.5080	2.0000	5.0000	1.0000
9	1.0000	0.7500	2.0000	1.5000
10	2.5000	1.2000	3.0000	0.5000
11	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE10							
Standard No.	Wt% Ca	Wt% Cl	Wt% Cu	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.0200	0.0300	0.0100	0.2000	0.2500	1.0000	0.0200
2	0.0200	0.0200	0.0500	0.2000	0.0200	0.0200	0.2500
3	0.0200	0.2000	0.0100	0.0400	0.2500	0.1500	0.2500
4	0.0200	0.2000	0.0500	0.0400	0.0200	1.0000	0.0200
5	0.4000	0.0200	0.0100	0.0400	0.0200	1.0000	0.2500
6	0.4000	0.0200	0.0500	0.0400	0.2500	0.0200	0.0200
7	0.4000	0.2000	0.0100	0.2000	0.0200	0.0200	0.0500
8	0.4000	0.2000	0.0500	0.2000	0.2500	1.0000	0.2500
9	0.2000	0.1000	0.0250	0.0800	0.1500	0.5000	0.1000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17				
Standard No.	Wt% Ca	Wt% P	Wt% S	Wt% Zn
1	0.6000	0.0050	0.1750	0.0600
2	0.5000	0.2000	0.0500	0.0800
3	0.4000	0.1500	0.3000	0.1800
4	0.2600	0.2500	0.1500	0.1200
5	0.0050	0.0050	0.4500	0.0700
6	0.4000	0.0250	0.3500	0.1000
7	0.3000	0.0600	0.2500	0.1200
8	0.2000	0.1000	0.4500	0.1000
9	0.0600	0.0800	0.3000	0.1300
10	0.0600	0.0500	0.2000	0.0500
11	0.0500	0.1200	0.1000	0.0750
12	0.0250	0.1500	0.2000	0.1300
13	0.0050	0.2000	0.4000	0.1500
14	0.1700	0.2500	0.5500	0.1100
15	0.1000	0.1000	0.2000	0.2000
16	0.0100	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17A					
Standard No.	Wt% Ca	Wt% Cl	Wt% P	Wt% S	Wt% Zn
1	0.6000	0.1000	0.0050	0.1750	0.0600
2	0.5000	0.0000	0.2000	0.0500	0.0800
3	0.4000	0.0100	0.1500	0.3000	0.1800
4	0.2600	0.5000	0.2500	0.1500	0.1200
5	0.0050	1.0000	0.0050	0.4500	0.0700
6	0.4000	0.4000	0.0250	0.5000	0.1000
7	0.3000	0.1000	0.0600	0.2500	0.1200
8	0.2000	0.0100	0.1000	0.4500	0.1000
9	0.0600	0.0500	0.0800	0.3000	0.1300
10	0.0600	0.2000	0.0500	0.2000	0.0500
11	0.0500	0.5000	0.1200	0.1000	0.0750
12	0.0250	0.8000	0.1500	0.2000	0.1300
13	0.0050	1.0000	0.2000	0.4000	0.1500
14	0.1700	0.6000	0.2500	0.5500	0.1100
15	0.1000	0.2000	0.1000	0.2000	0.2000
16	0.0100	0.4000	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17A/B						
Standard No.	Wt% Ba	Wt% Ca	Wt% Cl	Wt% P	Wt% S	Wt% Zn
1	0.1000	0.6000	0.1000	0.0050	0.1750	0.0600
2	0.1750	0.5000	0.0000	0.2000	0.0500	0.0800
3	0.0000	0.4000	0.0100	0.1500	0.3000	0.1800
4	0.0250	0.2600	0.5000	0.2500	0.1500	0.1200
5	0.1500	0.0050	1.0000	0.0050	0.4500	0.0700
6	0.0000	0.4000	0.4000	0.0250	0.3500	0.1000
7	0.2000	0.3000	0.1000	0.0600	0.2500	0.1200
8	0.0000	0.2000	0.0100	0.1000	0.4500	0.1000
9	0.1000	0.0600	0.0500	0.0800	0.3000	0.1300
10	0.0500	0.0600	0.2000	0.0500	0.2000	0.0500
11	0.0750	0.0500	0.5000	0.1200	0.1000	0.0750
12	0.0100	0.0250	0.8000	0.1500	0.2000	0.1300
13	0.0050	0.0050	1.0000	0.2000	0.4000	0.1500
14	0.0000	0.1700	0.6000	0.2500	0.5500	0.1100
15	0.0000	0.1000	0.2000	0.1000	0.2000	0.2000
16	0.0050	0.0100	0.4000	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17B					
Standard No.	Wt% Ba	Wt% Ca	Wt% P	Wt% S	Wt% Zn
1	0.1000	0.6000	0.0050	0.1750	0.0600
2	0.1750	0.5000	0.2000	0.0500	0.0800
3	0.0000	0.4000	0.1500	0.3000	0.1800
4	0.0250	0.2600	0.2500	0.1500	0.1200
5	0.1500	0.0050	0.0050	0.4500	0.0700
6	0.0000	0.4000	0.0250	0.3500	0.1000
7	0.2000	0.3000	0.0600	0.2500	0.1200
8	0.0000	0.2000	0.1000	0.4500	0.1000
9	0.0000	0.0600	0.0800	0.3000	0.1300
10	0.0500	0.0600	0.0500	0.2000	0.0500
11	0.0750	0.0500	0.1200	0.1000	0.0750
12	0.0100	0.0250	0.1500	0.2000	0.1300
13	0.0050	0.0050	0.2000	0.4000	0.1500
14	0.0000	0.1700	0.2500	0.5500	0.1100
15	0.0000	0.1000	0.1000	0.2000	0.2000
16	0.0050	0.0100	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17B/C						
Standard No.	Wt% Ba	Wt% Ca	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.0250	0.6000	0.1000	0.0050	0.1750	0.0600
2	0.0000	0.5000	0.1500	0.2000	0.0500	0.0800
3	0.1000	0.4000	0.3500	0.1500	0.3000	0.1800
4	0.1750	0.2600	0.2250	0.2500	0.1500	0.1200
5	0.1500	0.0050	0.0000	0.0050	0.4500	0.0700
6	0.0000	0.4000	0.5000	0.0250	0.3500	0.1000
7	0.1000	0.3000	0.3250	0.0600	0.2500	0.1200
8	0.2000	0.2000	0.2500	0.1000	0.4500	0.1000
9	0.0500	0.0600	0.1000	0.0800	0.3000	0.1300
10	0.0750	0.0600	0.4000	0.0500	0.2000	0.0500
11	0.0100	0.0500	0.3000	0.1200	0.1000	0.0750
12	0.0000	0.0250	0.2000	0.1500	0.2000	0.1300
13	0.1750	0.0050	0.3750	0.2000	0.4000	0.1500
14	0.0050	0.1700	0.1750	0.2500	0.5500	0.1100
15	0.0000	0.1000	0.4250	0.1000	0.2000	0.2000
16	0.0050	0.0100	0.2750	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE17C					
Standard No.	Wt% Ca	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.6000	0.1000	0.0050	0.1750	0.0600
2	0.5000	0.1500	0.2000	0.0500	0.0800
3	0.4000	0.3500	0.1500	0.3000	0.1800
4	0.2600	0.2250	0.2500	0.1500	0.1200
5	0.0050	0.4500	0.0050	0.4500	0.0700
6	0.4000	0.5000	0.0250	0.3500	0.1000
7	0.3000	0.3250	0.0600	0.2500	0.1200
8	0.2000	0.2500	0.1000	0.4500	0.1000
9	0.0600	0.1000	0.0800	0.3000	0.1300
10	0.0600	0.4000	0.0500	0.2000	0.0500
11	0.0500	0.3000	0.1200	0.1000	0.0750
12	0.0250	0.2000	0.1500	0.2000	0.1300
13	0.0050	0.3750	0.2000	0.4000	0.1500
14	0.1700	0.1750	0.2500	0.5500	0.1100
15	0.1000	0.4250	0.1000	0.2000	0.2000
16	0.0100	0.2750	0.0100	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE22							
Standard No.	Wt% Ca	Wt% Cl	Wt% Cu	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.3000	0.0800	0.0300	0.0600	0.0600	0.2750	0.0600
2	0.2500	0.1000	0.0000	0.0100	0.1500	0.0000	0.1500
3	0.5000	0.0000	0.0350	0.1600	0.1500	0.0000	0.0200
4	0.3500	0.0100	0.0000	0.1200	0.0800	0.2000	0.0000
5	0.1100	0.0000	0.0150	0.1000	0.1000	0.3000	0.0500
6	0.2000	0.1000	0.0000	0.2000	0.0500	0.2500	0.1500
7	0.0000	0.0500	0.0250	0.0000	0.0000	0.4500	0.0200
8	0.1500	0.0300	0.0000	0.1000	0.0300	0.4000	0.0400
9	0.2500	0.1500	0.0100	0.1600	0.0000	0.3500	0.0800
10	0.1100	0.1500	0.0400	0.0050	0.0300	0.7500	0.1500
11	0.2600	0.0500	0.0000	0.0000	0.0000	0.7500	0.0000
12	0.2000	0.0000	0.0050	0.1400	0.0800	0.5000	0.0800
13	0.0000	0.0000	0.0050	0.0200	0.0200	0.0200	0.0200
14	0.0700	0.1500	0.0200	0.0800	0.1400	0.6500	0.1500
15	0.0500	0.0000	0.0000	0.0000	0.1500	0.0000	0.0000
16	0.4000	0.0000	0.0010	0.0800	0.0000	0.5000	0.0200
17	0.1800	0.0200	0.0200	0.0000	0.0200	0.6000	0.0600
18	0.4000	0.0100	0.0010	0.0100	0.0200	0.2000	0.1000
19	0.0100	0.0200	0.0400	0.0100	0.0200	0.2000	0.1000
20	0.0500	0.0050	0.0500	0.0000	0.0080	0.0000	0.1200
21	0.2000	0.0500	0.0200	0.0800	0.0500	0.2750	0.0500
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOE23								
Standard No.	Wt% Ba	Wt% Ca	Wt% Cl	Wt% Cu	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.1000	0.3000	0.0800	0.0300	0.0600	0.0600	0.2750	0.0600
2	0.1750	0.2500	0.1000	0.0000	0.0100	0.1500	0.0000	0.1500
3	0.0400	0.5000	0.0000	0.0350	0.1600	0.1500	0.0000	0.0200
4	0.0200	0.3500	0.0100	0.0000	0.1200	0.0800	0.2000	0.0000
5	0.1500	0.1100	0.0000	0.0150	0.1000	0.1000	0.3000	0.0500
6	0.0000	0.2000	0.1000	0.0000	0.2000	0.0500	0.2500	0.1500
7	0.2000	0.0000	0.0500	0.0250	0.0000	0.0000	0.4500	0.0200
8	0.0000	0.1500	0.0300	0.0000	0.1000	0.0300	0.4000	0.0400
9	0.0000	0.2500	0.1500	0.0100	0.1600	0.0000	0.3500	0.0800
10	0.0000	0.1100	0.1500	0.0400	0.0050	0.0300	0.7500	0.1500
11	0.1000	0.2600	0.0500	0.0000	0.0000	0.0000	0.7500	0.0000
12	0.0500	0.2000	0.0000	0.0050	0.1400	0.0800	0.5000	0.0800
13	0.0000	0.0000	0.0000	0.0050	0.0200	0.0200	0.2000	0.0200
14	0.0800	0.0700	0.1500	0.0200	0.0800	0.1400	0.6500	0.1500
15	0.0100	0.0500	0.0000	0.0000	0.0000	0.1500	0.0000	0.0000
16	0.0000	0.4000	0.0000	0.0010	0.0800	0.0000	0.5000	0.0200
17	0.0000	0.1800	0.0200	0.0200	0.0000	0.0200	0.6000	0.0600
18	0.0000	0.4000	0.0100	0.0010	0.0100	0.0200	0.0000	0.0000
19	0.1500	0.0100	0.0200	0.0400	0.0100	0.0200	0.2000	0.1000
20	0.0050	0.0500	0.0050	0.0500	0.0000	0.0080	0.0000	0.1200
21	0.1000	0.2000	0.0500	0.0200	0.0800	0.0500	0.2750	0.0500
22	0.1200	0.2000	0.0000	0.0000	0.0000	0.0000	0.7500	0.0000
23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOEASTM1				
Standard No.	Wt% Ca	Wt% P	Wt% S	Wt% Zn
1	0.0050	0.0050	0.0500	0.0500
2	0.6000	0.0000	0.0000	0.0000
3	0.0000	0.3000	0.0000	0.0000
4	1.0000	0.0000	1.0000	0.0000
5	0.0000	0.0000	0.0000	0.3000
6	0.0050	0.2500	0.8000	0.3000
7	0.5000	0.1500	0.5000	0.1500
8	0.0100	0.2000	0.1000	0.2500
9	0.0500	0.0100	0.4000	0.0750
10	0.1000	0.1500	0.2000	0.2000
11	0.2000	0.2000	0.8000	0.1000
12	0.4000	0.0050	0.8000	0.3000
13	0.6000	0.1000	0.5000	0.0500
14	0.8000	0.0100	0.0500	0.1000
15	1.0000	0.3000	1.0000	0.1500
16	0.4000	0.0500	0.6000	0.2500
17	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOEASTM2								
Standard No.	Wt% Ba	Wt% Ca	Wt% Cl	Wt% Cu	Wt% Mg	Wt% P	Wt% S	Wt% Zn
1	0.0200	0.0200	0.0300	0.0100	0.2000	0.2500	1.0000	0.0200
2	0.2500	0.0200	0.0200	0.0500	0.2000	0.0200	0.0200	0.2500
3	0.0200	0.0200	0.2000	0.0100	0.0400	0.2500	0.1500	0.2500
4	0.2500	0.0200	0.2000	0.0500	0.0400	0.0200	1.0000	0.0200
5	0.0200	0.4000	0.0200	0.0100	0.0400	0.0200	1.0000	0.2500
6	0.2500	0.4000	0.0200	0.0500	0.0400	0.2500	0.0200	0.0200
7	0.0200	0.4000	0.2000	0.0100	0.2000	0.0200	0.0200	0.0500
8	0.2500	0.4000	0.2000	0.0500	0.2000	0.2500	1.0000	0.2500
9	0.1300	0.2000	0.1000	0.0250	0.0800	0.1500	0.5000	0.1000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Concentration Table: LOEASTM4					
Standard No.	Wt% Ca	Wt% P	Wt% S	Wt% Zn	Wt% Mg
1	0.0050	0.0050	0.0500	0.0500	0.1000
2	0.6000	0.0000	0.0000	0.0000	0.1500
3	0.0000	0.3000	0.0000	0.0000	0.3500
4	1.0000	0.0000	1.0000	0.0000	0.2250
5	0.0000	0.0000	0.0000	0.3000	0.4500
6	0.0050	0.2500	0.8000	0.3000	0.5000
7	0.5000	0.1500	0.5000	0.1500	0.3250
8	0.0100	0.2000	0.1000	0.2500	0.2500
9	0.0500	0.0100	0.4000	0.0750	0.0500
10	0.1000	0.1500	0.2000	0.2000	0.4000
11	0.2000	0.2000	0.8000	0.1000	0.3000
12	0.4000	0.0050	0.8000	0.3000	0.2000
13	6.0000	0.1000	0.5000	0.0500	0.3750
14	0.8000	0.0100	0.0500	0.1000	0.1750
15	1.0000	0.3000	1.0000	0.1500	0.4250
16	0.4000	0.0500	0.6000	0.2500	0.2750
17	0.0000	0.0000	0.0000	0.0000	0.0000

METAL WORKING FLUIDS STANDARDS- FORMULATED SETS			
Concentration Table: MWFL13			
Standard No.	Wt% Cl	Wt% P	Wt% S
1	0.0000	0.0000	0.0000
2	0.7500	0.0250	0.5000
3	0.0500	0.1000	3.0000
4	1.0000	0.5000	2.5000
5	0.1000	0.0050	2.0000
6	1.5000	0.2000	1.0000
7	2.0000	0.0050	3.0000
8	1.0000	0.0500	0.1000
9	0.5000	0.4000	0.0000
10	2.0000	0.2000	1.5000
11	0.0000	0.5000	1.5000
12	1.2500	0.0100	0.0500
13	0.0500	0.3000	0.0500

<b>STANDARDS FOR PE ANALYSIS</b>					
Table: PL(PE)3-5E(P)					
Standard No.	Wt% Br	Wt% Cd	Wt% Cr	Wt% Hg	Wt% Pb
1	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0250	0.0050	0.0500	0.0500	0.0500
3	0.0500	0.0100	0.1000	0.1000	0.1000

Table: PL(PE)9-5E(P)					
Standard No.	Wt% Br	Wt% Cd	Wt% Cr	Wt% Hg	Wt% Pb
1	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0025	0.0025	0.0050	0.0100	0.1000
3	0.0400	0.0100	0.0750	0.0075	0.0250
4	0.0100	0.0125	0.1250	0.0500	0.0050
5	0.0250	0.0075	0.1000	0.0250	0.1250
6	0.0500	0.0010	0.0650	0.0800	0.0750
7	0.0200	0.0005	0.0250	0.1000	0.0100
8	0.0300	0.0050	0.0500	0.0030	0.0500
9	0.0050	0.0150	0.0100	0.1200	0.0350
QC Sample	0.0250	0.0050	0.0500	0.0500	0.0500

<b>STANDARDS FOR PVC ANALYSIS</b>					
Table: PL(PVC)3-5E(P)					
Standard No.	Wt% Br	Wt% Cd	Wt% Cr	Wt% Hg	Wt% Pb
1	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0250	0.0050	0.0500	0.0500	0.0500
3	0.0500	0.0100	0.1000	0.1000	0.1000

Table: PL(PVC)9-5E(P)							
Standard No.	Wt% Br	Wt% Cd	Wt% Cr	Wt% Hg	Wt% Pb	Wt% Ca	Wt% Cl
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	40.00
2	0.0025	0.0025	0.0050	0.0100	0.1000	0.5000	35.00
3	0.0400	0.0100	0.0750	0.0075	0.2500	1.5000	15.00
4	0.0100	0.0125	0.1250	0.0500	0.0050	0.2500	40.00
5	0.0250	0.0075	0.1000	0.0250	0.1250	0.0000	35.00
6	0.0500	0.0010	0.0650	0.0800	0.0750	3.0000	10.00
7	0.0200	0.0005	0.0250	0.1000	0.0100	2.0000	40.00
8	0.0300	0.0050	0.0500	0.0030	0.0500	0.0000	12.50
9	0.0050	0.0150	0.0100	0.1200	0.0350	0.0000	35.00
QC Sample	0.0250	0.0050	0.0500	0.0500	0.0500	0.0000	35.00

MONITOR SAMPLES FOR XRF - SILICATE GLASSES			
Table: Multi-Elements			
Element	GL-LOE1	GL-LOE2	GL-LOE3
Ba	0.0040	0.1850	0.5600
Ca	0.0100	0.5000	0.5000
Cl	0.0050	0.1500	0.4500
Cu	0.0010	0.0500	0.1500
Mg	0.0010	0.1500	0.4500
Mo	0.0200	0.1500	0.4500
P	0.0000	0.1500	0.4600
S	0.2000	0.7500	0.7500
Zn	0.0200	0.1500	0.4600

TITRATION STANDARDS	
Table: BRI3	
Standard No.	Bromine Index
1	10
2	100
3	1000

Table: BrNo2	
Standard No.	Bromine #
1	2
2	10

Table: TAN2	
Standard No.	Acid Number
1	2
2	5

Table: BNo3	
Standard No.	Base Number
1	2
2	5
3	10



**ANALYTICAL SERVICES, INC.**

*It's a Matter of Quality!*