

PRICE LIST

Abrasives (ash and acid insolubles also required)	10 mL	25.00
Accelerated Gum, Air Jet, ASTM D873		
- a. 4 Hours	150 mL	35.00
- b. 8 Hours	150 mL	45.00
- c. 16 Hours	150 mL	50.00
Accelerated Gum, Steam Jet, ASTM D873		
- a. 4 Hours	150 mL	50.00
- b. 16 Hours	150 mL	65.00
Accelerated Stability, ASTM D2274	500 mL	100.00
Accelerated Stability, Du Pont F21	200 mL	100.00
Accelerated Stability, Nalco TF9, (90 minutes at 300F., or 24 hours at 212F.)	200 mL	100.00
Acetyl Number	100 mL	150.00
Acid Insoluble of Ash	30 mL	30.00
Acid Neutralization, HBr, (FTM Std 791b, 5108.1)	500 mL	225.00
Acid Number, Aviation Turbine Fuel, ASTM D3242	200 mL	35.00
Acid Number, semi-micro, ASTM D3339	1 mL	30.00
Acid Number, ASTM D664	50 mL	25.00
Acid or Base Number, ASTM D974	50 mL	25.00
Acid Wash Color, ASTM D848	100 mL	35.00
Acidity of Distillation Residue (distillation also required)		10.00
Active Sulfur in Cutting Fluids, ASTM D1662 (requires total sulfur)	100 g	85.00
Air Release Value (IP 313), ASTM D3427	250 mL	200.00
Alcohols and Oxygenates by Gas Chromatographic Analysis, ASTM D4815	10 mL	275.00
Aldehydes in Air or Effluent (Chromotropic acid or Bisulfite addition method - plus sampling, if required)		195.00
Alkali or Mineral Acids	125 mL	25.00
Alkalinity, Reserve, ASTM D1121	100 mL	60.00
Alkyl Lead Compounds in gasoline As Total Lead, ASTM D3237	10 mL	50.00
Aluminum Determination	See Metals Determination	

Amperometric Determination of Mercaptan Sulfur in Aviation Turbine Oils and LPG, ASTM D1323	See "Mercaptans" and "Disulfides" for gas chromatographic analysis of odorant chemicals	
- Aviation Turbine Oil	300 mL	375.00
- LPG (liquid Petroleum Gas)		
- a. Routine	1 lb	375.00
- b. Referee	3 lb	600.00
- c. After conversion of disulfides	5 lb	850.00
Aniline or mixed Aniline Point, ASTM D611	50 mL	35.00
Aniline-Gravity Constant, MIL-J-5624H	200 mL	50.00
Anti-Icing Additive, Jet Fuel	100 mL	45.00
Antimony Determination	See Metals Determination	
API Gravity, Distillable Products, ASTM D287	200 mL	15.00
API Gravity, Residual Products, ASTM D287	200 mL	25.00
Apparent Viscosity, ASTM D1092	2 Kg	
- a. 75 to 115 F.		150.00
- b. -20 to 75 F.		175.00
- c. -21 to -100 F.		225.00
Apparent Viscosity by Cold Cranking Simulator, ASTM D5293	25 mL	Quotation on Request
Apparent Viscosity, Brookfield	500 mL	
- a. 77 F.		95.00
- b. 0 F.		100.00
- c. -10 F., -20 F., -30 F., or -40 F.		225.00
Apparent Viscosity, Brookfield, ASTM D2983	50 mL	100.00
Appearance, visual		15.00
Aromatics, ASTM D1319	10 mL	70.00
Aromatics, ASTM D1019 and D875	250 mL	125.00
Arsenic Determination	See Metals Determination	
Ash Content, ASTM D482	25 g	25.00
Ash Content, Sulfated, ASTM D874	25 g	30.00
Ash, Analysis by Emission Spectroscopy	25 g	
- a. Qualitative (solids or liquids)		50.00
- b. Quantitative (oils only)		45.00
Asphalt		
- a. Extraction and recovery from paving by Absen Method (ASTM D1836)		Quotation on Request
- b. Including viscosity, penetration and ash on asphalt plus sizing of aggregate (AASHTO T-30)		Quotation on Request

Asphaltenes in asphalt, ASTM D3279	10 g	55.00
ASTM Color, Lubricants, ASTM D1500	100 mL	15.00
Autoignition Temperature at Reduced or Elevated Pressure, ASTM D2883	100 mL	Quotation on request
Autoignition Temperature, ASTM D2155	100 mL	950.00
Autoignition Temperature, ASTM E659	100 mL	850.00
- Hot Flame Ignition Temperature		
- only (AIT)		500.00
Bacteria and Fungus		125.00
Bacteria, Anaerobic		125.00
Ball-On-Three-Discs Test, Wear Test For Distillate Fuels	50 mL	175.00
		+ Parts
Base Number, Total, ASTM D2896	50 mL	70.00
Base Number, Total, ASTM D4739	50 mL	25.00
Base Number, Total, ASTM D974	50 mL	25.00
Base Number, Modified ASTM D974		87.50
Bearing Rust Test, ASTM D1743 + parts	250 g	225.00
- Alternate Method (Appendix X.2)+ parts		225.00
Benzene in Gasoline, ASTM D4420	10 mL	275.00
Benzene* and Pentane Insolubles, ASTM D893	200 mL	
- a. Without coagulant		
- *Toluene will be substituted		
- for Benzene		50.00
- b. With coagulant		55.00
Beryllium Determination	See Metals Determination	
Bitumen Determination, ASTM D2042	125 mL	50.00
Bituminous Emulsions, Protective Coatings for Metal, ASTM D1010	5 lb	Quotation on request
Bleeding Test, Grease, FTMS 791c, 321.3	100 g	45.00
Bleeding Test, Grease, ASTM D1742	400 g	
- a. At 77 F.		45.00
- b. Above 77 F.		75.00 and up
Boiling Point Change (Molecular Weight Determination)	125 mL	250.00
Boiling Point of Engine Anti-freeze, ASTM D1120	125 mL	50.00
Boiling Range Distribution by Gas Chromatography, ASTM D2887	0.1 mL	275.00
Boiling Range Distribution of Gasoline and Gasoline Fractions by Gas Chromatography, ASTM D3710	0.1 mL	375.00

Bomb Copper Corrosion, MIL-G-10924 or MIL-G-23827	50 g	75.00
Bomb Corrosion Test, MIL-G-15793	50 g	75.00
Bomb Oxidation of Grease or Liquids, ASTM D942		
- a. 100 hours	50 g	70.00
- b. 400 hours	50 g	175.00
- c. 100 hours with catalyst	50 g	77.50
Borderline Pumping Temperature (BPT), ASTM D3829	100 mL	
- a. Determination of actual BPT, per run (3 or more are required)		Quotation on Request
- b. Determination of conformance to SAE J300, ASTM D3829		Quotation on Request
BOTD Test, Ball-On-Three-Discs	50 mL	150.00 + Parts
Bottom Sediment and Water, BS & W, ASTM D96 or ASTM D1796	200 mL	20.00
British Air Ministry Oxidation Test, IP 48/67	500 mL	175.00
Bromine Number, Electrometric, ASTM D1159	50 mL	65.00
BT9, Corrosion, IH Method + parts	500 mL	225.00
BTU, Natural Gas	250 mL	375.00
BTU, Sulfur containing materials, ASTM D240	25 mL	50.00 + sulfur
BTU, Volatile Materials, ASTM D240	25 mL	55.00 + sulfur
Bulk Modulus, ASTM D6793		Quotation on request
Burning Quality of Fuels and Illumination Oils, ASTM D187	2000 mL	95.00
Burning, Sustained, ASTM D4206	100 mL	175.00
Cadmium Determination		See Metals Determination
Calcium and Barium Petroleum Sulfonates	250 g	Quotation on request
Calcium Determination		See Metals Determination
Calibration of Viscometers and other Instruments		Quotation on request

Calorific Value, ASTM D240		
- a. Natural Gas	250 mL	375.00
- b. LPG	250 mL	275.00
- c. Aviation Gasoline and - Jet Fuel	50 mL	55.00 + sulfur
- d. Kerosine and - Heavier	50 mL	50.00 + sulfur
Carbon Residue on 10% Residuum, Ramsbottom, ASTM D524	200 mL	55.00
Carbon Residue on 10% Residuum, Conradson, ASTM D189	200 mL	45.00
Carbon Residue, Conradson, ASTM D189	25 mL	27.50
Carbon Residue, Ramsbottom, ASTM D524	25 mL	45.00
Carbon, Free (by solvent extraction)	10 mL	35.00
Carbon, Free, or graphite in grease	25 g	125.00
Carbonate, gravimetric method	1 g	125.00
Carbon-Hydrogen Ratio (ASTM E191)		
- a. Gasoline, Aviation Fuels and - Jet Fuels (JP-4)	25 mL	50.00
- b. Kerosine and Heavier (Jet A)	25 mL	50.00
Carbonizable Substances in Paraffin Wax, ASTM D612	50 g	90.00
Carbonizable Substances in White Mineral Oil, ASTM D565	50 mL	100.00
Cellulose Nitrate Dilution Ratio, ASTM D1720	200 mL	75.00
Cetane Improver, ASTM D4046	100 mL	97.50
Cetane Rating of Diesel Fuel, ASTM D613	1 gal	85.00
Channel Characteristics of Gear Oil, FTMS 791c, 3456.2 (per test temperature)	1 qt	120.00
Chemical Activity on Copper of Universal Gear Lubricants, ASTM D130	50 mL	25.00
Chloride in anti-freeze, quantitative, ASTM D3634	100 g	48.50
Chloride, Organic, UOP 395 (Sodium Biphenyl method)	100 mL	Quotation on Request
Chloride, Organic, UOP 588, mod.	100 mL	95.00
Chloride, Qualitative	10 mL	15.00
Chloride, Quantitative	10 mL	35.00
Chlorine in Cutting Fluids, Active Proposed Method 1962 ASTM Standards (includes total chlorine)	50 mL	125.00

Chlorine in Lubricating Oil, ASTM D1317 (Sodium Alcoholate Method)	50 mL	Quotation on Request
Chlorine or Chloride, trace, bomb method	25 mL	95.00
Chlorine, Trace, Water-Leachable	100 mL	95.00
Chlorine, ASTM D808	10 mL	30.00
Chromatographic Analysis of Natural Gas	100 mL	275.00
LPG (Hydrocarbon Distribution)		275.00
Chromatographic Method for Determination of Characteristic Groups in Extender and Processing Oils Clay Gel Adsorption, ASTM D2007	50 mL	225.00
Chromium Determination		See Metals Determination
Clarity of Distillate Fuel ASTM D4176	1000 mL	25.00
Cleanliness Test, Particle Count, ARP 598A or ASTM F312	100 mL	70.00
- If 1-5 micron range is included		80.00
Cleanliness, Particle Weight, ASTM F313, D2276 or D5452	100 mL	60.00
- Including filtration of more than 100 mL		65.00
Cloud Point, ASTM D2500	50 mL	
- a. Above 30 F.		25.00
- b. From 30 to 0 F.		27.50
- c. From 0 F. to -30 F.		35.00
- d. Below -30 F.		50.00
Cloud Intensity at Low Temp., FTM 791c 202.1	200 mL	95.00
Coefficient of Friction (4-Ball Method)	100 mL	175.00 + parts
Coefficient of Friction (Falex Method)	100 mL	100.00 + parts
Coefficient of Thermal Expansion	50 mL	60.00 and up
Coking Test, Panel, FTMS 791b, 3462	600 mL	
- a. 600 F.		225.00
- b. 700 F.		240.00
- c. 800 F.		260.00
Coking Test, Panel (RTD Modification of Method 3462, FTMS 791b)	600 mL	Quotation on Request
Cold Cranking Simulator, Apparent Viscosity, ASTM D5293	10 mL	Quotation on Request
Color, Acid Wash, ASTM D848	100 mL	45.00

Color, Petroleum Products, ASTM D1500	60 mL	15.00
Color, Refined Oils, Saybolt Chromometer, ASTM D156	250 mL	22.50
Combustion Additive in Diesel Fuel, VV-F-800C	25 mL	60.00
Compatibility of Lubricants, FTMS 791c, 3403.2	300 mL	100.00 per set of blends
Combustibility, Sustained, UN Method L2	100 mL	250.00
Conductivity, Thermal, ASTM D2717	100 mL	
- a. Between 100 F. and 300 F., per temperature		750.00
- b. 32 F.,		750.00
- c. Between 300 F. and 500 F., per temperature		850.00
Cone Penetration of Lubricating Grease, ASTM D217	500 g	
- a. Unworked		30.00
- b. Worked 60 strokes		35.00
- c. 1/4 Scale (ASTM D1403), unworked	5 g	35.00
- d. 1/4 Scale (ASTM D1403), worked		
- 60 strokes	5 g	45.00
Congealing Point of Pharmaceutical Petrolatum, ASTM D938	50 g	65.00
Consistency of Grease, ASTM D217	500 g	
- a. Unworked		30.00
- b. Worked 60 reciprocal strokes		35.00
- c. Worked 100,000 reciprocal strokes		125.00
- d. 1/4 Scale (ASTM D1403), unworked	5 g	35.00
- e. 1/4 Scale (ASTM D1403), worked		
- 60 strokes	5 g	45.00
Consistency Test (Roll Stability), ASTM D1831		
- a. 2 hours @ ambient temperature		85.00
- b. 100 hours @ 150 F.		225.00
Copper Corrosion of LPG, ASTM D1838	100 g	50.00
Copper Corrosion of Petroleum Products, ASTM D130 (@ 122 F. or 212 F.)	50 mL	25.00
Copper Corrosion Test, ASTM D1616 and ASTM D1275	50 mL	50.00
Copper Corrosion, Grease, FTMS 791b, 5309.4 or ASTM D4048	25 g	25.00

Copper Corrosion, Grease, ASTM D1261	25 g	75.00
Copper Determination	See Metals Determination	
Corrosion and Rubber Swelling, Brake Fluids, SAE J17030	350 mL plus pH	185.00 + parts 20.00
Corrosion of Copper, Vapor Phase, MIL-P-46002B	1000 mL	375.00
Corrosion Preventive Properties of Lubricating Grease, ASTM D1743	1/4 lb	225.00 + parts
Alternate Method (Appendix X.2)		275.00 + parts
Corrosion Protection, Static Water Drop	50 mL	42.50
Corrosion Protection, MIL-C-46113B	250 mL	250.00 + parts
Corrosion Protection, VV-C-846a	250 mL	250.00 + parts
Corrosion Protection, ASTM D1748	500 mL	
- a. Panel Preparation, each		30.00
- b. Exposure and Evaluation, per panel, per hour		0.20
- c. Minimum Exposure Charge, per sample		85.00
Corrosion Protection, Galvanic, FTMS 791c, 5322.2	50 mL	75.00
Corrosion Resistance Of Grease, MIL-G-10924	100 g	75.00
Corrosion Resistance of Grease, MIL-G-15793	50 g	75.00
Corrosion Test, Engine Coolant, ASTM D1384, per run	500 mL	225.00
Corrosion Test, International Harvester, BT-9, per run	500 mL	225.00 + parts
Corrosion, Copper, Static, FTMS 791c, 5305.1	250 mL	
- a. 450 F.		150.00
- b. 600 F.		300.00
Corrosion, Silver, IP 227	500 mL	150.00
Corrosion, Rust Preventing Characteristics of Turbine Oil, ASTM D665	600 mL	
- a. Distilled Water (Procedure A)		65.00
- b. Synthetic Sea Water (Procedure B)		75.00
- c. Procedure C		85.00

Corrosion, Silver, Static, FTMS 791c, 5305.1	250 mL	
- a. 450 F.		150.00
- b. 600 F.		300.00
Corrosion, Vapor Phase, After Exhaustion, MIL-P-46002B	1000 mL	450.00
Corrosion, Vapor Phase, MIL-P-46002B	1000 mL	395.00
Corrosion-Oxidation Stability, MIL-L-3918	250 mL	165.00
Corrosion-Oxidation Stability, FTMS 791c, 5307.2	Quotation on Request	
Corrosion-Oxidation Stability, FTMS 791c, 5308.7	250 mL	
- a. 250 F. - 168 hours		165.00
- b. 347 F. - 72 hours		165.00
- c. 400 F. - 48 or 72 hours		165.00
- d. 425 F. - 48 or 72 hours		165.00
- e. 450 F. - 48 or 72 hours		175.00
- f. 500 F. - 48 or 72 hours		200.00
- g. 600 F. - 48 or 72 hours		200.00
- h. 700 F. - 48 or 72 hours		200.00
- i. Modifications (including different - temperatures, longer exposures - and special metals, ASTM D6594, Cummins Method)	Quotation on Request	
- j. Sludge	Included	
Corrosive Sulfur in Electrical Insulating Oils, ASTM D1275	300 mL	50.00
Corrosiveness of Emulsifiable Cutting Fluids, FTMS 791c, 5306.5	150 mL	135.00
Corrosiveness of Grease or Semi-Solid Products, FTMS 791c, 5304.5 (77 F)	25 g	30.00
Corrosiveness, Grease, Copper Strip, 212 F., FTMS 791b, 5309.4	25 g	30.00
Corrosivity of LPG, ASTM D1838	150 g	60.00
Corrosivity, Galvanic Corrosion, FTMS 791c, 5322.2	50 mL	75.00
Crankcase Oil Dilution, Diesel Fuel Calculation from Viscosity Data	10 mL	60.00
Crankcase Oil Dilution, Diesel Fuel, Gas Chromatographic Method, ASTM D3524	1 mL	275.00
Crankcase Oil Dilution, Gasoline, ASTM D322	50 mL	30.00

Crankcase Oil Dilution, Gasoline, ASTM D3525	1 mL	275.00
Cutting Oil, Soluble, Corrosion of Cast Iron, IP 125/77	100 mL	90.00 + cost of specimens
Cutting Oil, Soluble, Oil Content, Dispersed, IP 137/55	1000 mL	80.00
Cutting Oils, Emulsion Stability, ASTM D1479	500 mL	65.00
De-Waxing Lubricants, UOP 46-64	10 g	250.00 and up
Deleterious Particles in Grease, ASTM D1404	10 g	35.00
Demulsibility, ASTM D1401 (Viscosity may be required to determine test temperature)	100 mL	
- a. 130 F.		50.00
- b. 180 F.		65.00
Demulsibility, Steam Emulsion Test, ASTM D1935 or IP 19/76, per run	100 mL	85.00
Demulsibility, Texaco SP 344-60	100 mL	85.00
Density and Specific Gravity of Solid Pitch and Asphalt, ASTM D71	50 g	50.00
Density and Specific Gravity of Liquids (by Pycnometer, ASTM D1475)	25 mL	
- a. 60 F., 68 F., 77 F.		27.50
- b. 100 F., 130 F., 210 F.		35.00
- c. Other temperatures, - - 80 F. to 700 F.		Quotation on request
Density of Road Oils, Road Tars, Asphalt Cements, ASTM D70	50 g	50.00ASTM 0
Density of Volatile Liquids and Gases	250 mL	375.00
Deposit-Forming Tendencies of Aircraft Turbine Lubricants, ASTM D3711, liquid and vapor	1 gal	330.00
Deposition Tendency, Thin Film, ASTM D3711	200 mL	165.00
Deposition Tendency, Vapor, ASTM D3711	200 mL	165.00

Dew Point of Gas	3 cu.ft	100.00
Dew Point of LPG	3 gal	100.00
Dielectric Strength,ASTM D877 or D1816	500 mL	150.00
Diene Value, UOP 326	50 g	175.00
Diesel Index, IP 21/53	100 mL	50.00
Differential Mackey Test, Spontaneous Heating Value, ASTM D3523	50 g	350.00 and up
Diluted Color		30.00
Dilution Ratio, Nitrocellulose, of Hydrocarbon Solvent, ASTM D1720	200 mL	75.00
Dilution, Crankcase Oil with Diesel Fuel, Calculated from Viscosity	10 mL	60.00
Dilution, Crankcase Oil with Diesel Fuel, ASTM D3524	1 mL	275.00
Dilution, Crankcase Oil with Gasoline Engine, ASTM D322	100 mL	30.00
Dilution, Crankcase Oil with Gasoline, ASTM D3525	1 mL	275.00
Dirt Count of Grease, FTMS 791b, 3005.3	25 g	60.00
Distillation of Aromatic Hydrocarbon, ASTM D850	150 mL	35.00
Distillation of Crude Petroleum, Hempel, ASTM D285	500 mL	125.00
Distillation of Crude Petroleum, Residue, IP 78/51T	200 mL	275.00
Distillation of Natural Gasoline, ASTM D216	150 mL	35.00
Distillation of Petroleum Products, ASTM D86	250 mL	30.00
Distillation of Plant Spray Oils, ASTM D447	150 mL	Withdrawn
Distillation Range of Lacquer Solvents and Diluents, ASTM D1078	150 mL	35.00
Distillation, Steam, of Bituminous Protective Coatings, ASTM D255	1500 mL	Quotation on Request
Distillation, Vacuum, ASTM D1160	300 mL	275.00

Distillation, Vacuum, of Liquid and Semi-Solid Asphaltic Materials to Obtain Residue of Specified Penetration, ASTM D1189	300 mL	375.00 per distillation + penetrations
Disulfides in LPG (Gas Chromatographic Method)	25 g	750.00 and up
Doctor Test, ASTM D 4952	25 mL	20.00
Drop Melting Point of Wax, ASTM D3954	10 g	35.00
Dropping Point of Lubricating Grease, ASTM D566	10 g	32.50
Dryness of Propane (Cobalt Bromide Method)	3 gal	75.00
Dryness of Propane (Dew Point Method)	3 gal	100.00
Dryness of Propane (Valve Freeze Method, ASTM D2713)	3 gal	100.00
Dryness of Propane (KF Method)	100 g	150.00
Effect of Grease on Copper, ASTM D1261	50 g	67.50
Effect on Cobalt Chloride Indicating Desiccant, FTMS 791b, 5800 - per MIL-C-6529C		77.50 150.00
Electrical Conductivity of Jet Fuel, ASTM D2624	250 mL	42.50
Elastomer Compatibility, ASTM D4289	250 g	97.50
Elemental Analysis, Carbon-Hydrogen - a. Aviation Gasoline and Jet Fuel	20 g	50.00
- b. Kerosine and Heavier	20 g	45.00
Emission Spectrographic Analysis - a. Qualitative (liquids or solids)	1 g	50.00
- b. Quantitative (oils only)		40.00
Emulsion Characteristics of Soluble Cutting Oils, FTMS 791c, 3205.3	25 mL	50.00
Emulsion Characteristics of Lubricating Oil, ASTM D1401 - a. 130 F.	100 mL	50.00
- b. 180 F.		65.00
Emulsion Tolerance of Grease	100 g	85.00
Emulsion, Steam, Lubricating Oils, ASTM D1935	100 mL	85.00

Endurance Life, Falex, of solid film lubricants (ASTM D2625A)		
- 77.50 + parts, per run (4 required), for 1 hr. or less		
- 50.00/0.5 hr. for additional running time		
Environmental Analysis		Quotation on request
Environmental Exposure - also see Humidity Test, Salt Spray Test, and Protection Tests		Quotation on request
Evaporation Loss of Lubricating Greases and Oils, ASTM D972 and Modifications	25 mL	
- a. 22 hrs. @ 210-300 F. and 760 mm.Hg.		65.00
- b. 6 hrs. @ 400 F. and 760 mm.Hg.		65.00
- c. 6 hrs. @ 450 F. and 760 mm.Hg.		75.00
- d. 6 hrs. @ 500 F. and 760 mm.Hg.		85.00
- e. 6 hrs. @ 450 F. and 140 mm.Hg.		250.00
- f. 6 hrs. @ 500 F. and 140 mm.Hg.		250.00
- g. Other Modifications		Quotation on request
Evaporation Rate, Gardner Method	10 mL	97.50
Evaporation of Brake Fluid, SAE J1703c	500 mL	77.50 + Pour Point
Evaporation, 6 hrs. @ 400 F., MIL-L-7808G	25 mL	65.00
Evaporation, FTMS 791c, 353.1	25 mL	30.00
Existent Gum in Fuel (ASTM D381)		
- a. Air jet	200 mL	35.00
- b. Steam jet	200 mL	50.00
Explosive Vapors in Fuel, FTMS 791b, 1151.1	500 mL	125.00
Extreme Pressure Properties		See Load Carrying Capacity
Falex Load Carrying Capacity of Solid Films, ASTM D2625B		77.50 + parts, per run (4 required)
Falex Test (E.P.), ASTM D3233A or D3233B	100 mL	77.50 + parts
Falex Test (Wear), ASTM D2670	100 mL	77.50 and up + parts
Falex Wear Life of Solid Films, ASTM D2625A (See Endurance Life)		77.50 + parts, per run (4 required)
Fatty Acid Analysis of oils and fats by Gas Chromatography	50 g	475.00
Fatty Acid Separation from Grease	200 g	90.00
Fatty Oils (Fixed Oils) Separation	200 mL	90.00

Ferrous Metal Protective Characteristics of Universal Gear Lubricants in Presence of Water, FTMS 791b, 5315.1	300 mL	75.00
FIA, Hydrocarbon Types, ASTM D1319		70.00
Fillers in Grease	100 g	175.00 and up
Film Stability and Corrosion on Steel, MIL-G-27617C		90.00
Filter Color Rating, ASTM D2276	1 gal	75.00
Filtration Cleanliness, ASTM D2276 or D4898	100 mL	65.00
- Including Filtration of More Than 100 mL		75.00
Flammable Solids Classification, 49CFR173, App.E Or UN Method	100 g	750.00
Flame Propagation Rate, Linear, ASTM D5306,	100 mL	750.00
Flash Point and Fire Point, Cleveland Open Cup, ASTM D92	100 mL	
- a. Flash below 200 F.		27.50
- b. Flash between 200 F. and 300 F.		32.00
- c. Flash between 300 F. and 500 F.		42.50
- d. Flash above 500 F.		48.50
Flash Point, Cleveland Open Cup, ASTM D92	100 mL	
- a. Below 200 F.		25.00
- b. Between 200 F. and 300 F.		28.00
- c. Between 300 F. and 500 F.		38.00
- d. Above 500 F.		45.00
Flash Point, Pensky-Martens Closed Cup, ASTM D93	100 mL	
- a. 100 F. and above		27.50
- b. Below 100 F.		40.00
		and up
Flash Point, Seta Flash (determination of actual flash point), ASTM D3278 or D3828	10 mL	
- a. Flash above 100 F., but less than 200 F.		50.00
- b. Flash between 85 and 100 F.		50.00
- c. Flash between 60 and 85 F.		60.00
- d. Flash below 60 F.		50.00
- e. Flash above 200 F.		75.00
Flash Point, Seta Flash (go-no-go at any fixed temperature), ASTM D3278 or D3828	5 mL	
- a. Flash above 100 F., but less than 200 F.		25.00
- b. Flash between 85 to 100 F.		30.00
- c. Flash between 40 and 85 F.		
- d. Flash above 200 F.		50.00
Flash Point, Tagliabue Closed Cup, ASTM D56	100 mL	
- a. 100 F. and above		25.00
- b. Below 100 F.		35.00 and up

Flash Point, Tagliabue Open Cup, ASTM D1310	300 mL	
- a. Flash below 60 F.		225.00 and up
- b. Flash between 60 F. and 200 F.		200.00
- c. Flash between 200 F. and 325 F.		225.00
Flock Point of Refrigerant Compressor Oil, FTMS 791b, 1303.1	50 mL	175.00 +Cost of Refrigerant
Flow Point, O-F-506B	500 mL	50.00
Fluorine or Fluoride, standard method		85.00
Fluorine or Fluoride, trace method	1 g	100.00
Foaming Characteristics, ASTM D892 3 cycles	600 mL	60.00
- First cycle only		35.00
Free Alkali in Grease	100 g	25.00
Free and Corrosive Sulfur, ASTM D130	50 mL	15.00
Free Fatty Acids in Grease	100 g	25.00
Freezing Point of Aqueous Engine Anti-Freeze Solutions, ASTM D1177	100 mL	65.00
Freezing Point of Aviation Fuels, ASTM D2386	100 mL	65.00
Fretting Wear Protection, ASTM D4170	100 g	150.00 +parts
Fuel Contamination, MIL-S-5545A	200 mL	30.00
Fuel Stripping of Used Engine Oil, ASTM D3607	100 mL	225.00
Fuel System Icing Inhibitor, FTMS 791c, 5327.4	100 mL	35.00
Galvanic Corrosion, FTMS 791c, 5322.2 or ASTM D6547	50 mL	75.00
Galvanic Corrosion, Salt Spray	500 mL	175.00
Gas Bubble Separation Time, ASTM D3427 or IP 313	250 mL	225.00
Gas-Liquid Partition Chromatography, Analysis of Natural Gas	100 mL	375.00
LPG		275.00
Gas-Liquid Partition Chromatography, Miscellaneous Systems		
- a. Gas	100 ml.	Quotation on request
- b. Liquid	1 ml.	Quotation on request
- c. Odorants	See "Mercaptans" and "Disulfides"	
Glycol in Used Lubricating Oil		
- a. Qualitative	100 mL	27.50
- b. Quantitative	100 mL	65.00
GM Quenchometer	500 mL	150.00

Gravity, API, of Petroleum by Hydrometer, ASTM D287		
- a. Distillable products	300 mL	15.00
- b. Residual products	300 mL	20.00
Gravity, Specific of Gaseous Fuels, -(Including BTU and Composition)	250 mL	375.00
Gravity, Specific, of Industrial Aromatic Hydrocarbons, ASTM D891	50 mL	27.50
Gravity, Specific, of Miscellaneous Liquids, ASTM D1480 and ASTM D1481	50 mL	
- a. At 60 F., 68 F., and 77 F.		25.00
- b. At 100 F., 130 F., and 210 F.		35.00
- c. At other temperatures,		
- -80 F. to 700 F.	Quotation on request	
Gravity, Specific, of Road Oils, Road Tars, Cements and Soft Tar Pitches, ASTM D70	50 g	50.00
Grease Mobility @ 0 F. (U.S. Steel Method) "See Mobility"	2 lb	175.00
Gum, Existent, in Fuel, ASTM D381	150 mL	
- a. Air jet		30.00
- b. Steam jet		45.00
Gum, Potential, Air Jet Evaporation, ASTM D873	150 mL	
- a. 4 hours		40.00
- b. 8 hours		47.50
- c. 16 hours		75.00
Gum, Potential, Steam Jet Evaporation, ASTM D873	150 mL	
- a. 4 hours		50.00
- b. 16 hours		85.00
Halogen, Total (except Fluorine)	50 mL	30.00
- Trace (bomb method)	50 mL	95.00
Halogen, Total (Fluorine only)	50 mL	85.00
- Trace (Fluorine only)	50 mL	100.00
Hardness of Water (Calcium and Magnesium)	10 mL	55.00
Heat of Combustion, Gross		
- a. Gaseous Fuel	250 mL	375.00
- b. LPG	250 mL	375.00
- c. Liquid Fuel, ASTM D240	100 mL	
- aa. Kerosine and heavier		50.00
- bb. Gasoline and other volatile materials		+ sulfur
		55.00
		+ sulfur

Heat Capacity of Solids or Liquids, ASTM D2766	200 mL	
- a. 100 F. to 400 F. inclusive, - Liquids		1500.00
- b. 100 F. to 400 F. inclusive, - Solids		1700.00
- c. Other temperatures and - conditions	Quotation on request	
- NOTE: Vapor pressure data may be - required for samples of high - volatility at test temperatures. - Vapor Pressure by Isoteniscope, - ASTM D2879-includes heat of vaporization		350.00
Heat Stability of Transmission Oils (Heat Test)	500 mL	160.00
Heat Test, Static (U.S.Steel Method)	250 g	195.00
Heating, Self (Differential Mackey Test), ASTM D3523	50 g	350.00 and up
Herschel Demulsibility (Viscosity may be required to determine test temperature)	200 mL	
- a. At 130 F.		50.00
- b. At 180 F.		65.00
Hexane Solubles in Water	1 gal	50.00
High and Low Temperature Stability, FTMS 791b, 3460	50 mL	117.50
Horizontal Disc, Rust Prevention Properties, ASTM D3603	600 mL	110.00
Hot Surface Ignition, ASTM D6668	100 mL	750.00
Hot-Wire Quench Test		100.00
Humidity Corrosion Test of Grease, ASTM D1743 (100 hrs)	500 g	195.00 + parts
Humidity Corrosion Test, International Harvester BT-9	500 mL	195.00 + parts
Humidity Test, ASTM D1748	500 mL	
- a. Preparation of test panels, ea.		30.00
- b. Exposure, per specimen hour		0.20
- c. Minimum exposure charge, per sample		85.00

Hydrobromic Acid (HBr) Neutralization, FTMS 791b, 5108.1	500 mL	195.00
Hydrocarbon Type Identification, ASTM D1019 and ASTM D875	200 mL	150.00
Hydrocarbon Types (PONA)	200 mL	195.00
Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption, ASTM D1319	10 mL	70.00
Hydrocarbon Types in Liquid Petroleum Products, FIA, ASTM D1319 including depentanization (required for gasoline fractions)	100 mL	150.00
Hydrocarbon Types, ASTM D2007	50 mL	225.00
Hydrocarbon Types, N-d-M Method, ASTM D3238	100 mL	145.00
Hydrocarbon Types, VGC Method, ASTM D2140	100 mL	145.00
Hydrocarbons, Total and Carbon Number Distribution, in Air or Effluents by Gas Chromatography	1000 mL	275.00 and up
Hydrogen Sulfide		
- a. Natural Gas (qualitative)	3 cu.ft	60.00
- b. LPG (qualitative)	500 g	60.00
- c. Quantitative - methylene blue		150.00
Hydrolytic Stability, FTMS 791b, 3457.1, ASTM D2619	200 mL	175.00
- Plus addt'l charge of 30.00 for separation of stable emulsions		
Hydroxyl Number	100 mL	195.00
Icing Inhibitor, FTMS 791c, 5327.4		35.00
Ignition Quality, Diesel Fuel, ASTM D613	1 gal	85.00
Ignition Quality, Gasoline, ASTM D2699 or D2700, each	1 gal	85.00
Ignition Temperature, Autogenous at Elevated or Reduced Pressure, ASTM D2883	100 mL	Quotation on request
Ignition Temperature, Autoignition, ASTM D2155	100 mL	950.00

Ignition Temperature, Autoignition, ASTM E659	100 mL	
- Hot Flame Ignition Temperature only (AIT)		500.00
- Complete, including hot-flame (AIT), cool-flame (CFT), and Reaction Threshold (RTT)		850.00
Ignition Temperature, Autoignition, FTMS 791b, 5050	100 mL	Quotation on request
Induction Period of Fuel, ASTM D525	150 mL	
- a. 240 min., max.		35.00
- b. 300 min., max.		35.00
- c. 360 min., max.		40.00
- d. 480 min., max.		45.00
- e. Additional exposure	Quotation on request	
Infrared Spectrophotometry, ASTM E1252		
- With Interpretation		175.00 and up
Inherent (Intrinsic) Viscosity of Polymers, ASTM D2857	10 g	250.00
Inorganic Fines in Marine Residual Fuel, ASTM D4484	100 mL	95.00
Insoluble Resins, Used Lubricating Oil	200 mL	45.00
Insolubles, ASTM D893	200 mL	
- a. Without coagulant		50.00
- b. With coagulant		55.00
Insolubles, Total, ASTM D2274 (Accelerated Stability) "See Oxidation Stability"	500 mL	100.00
Interfacial Tension, Oil against Water by DuNuoy Tensiometer, 77 F., ASTM D971 (plus required density determination)	200 mL	77.50
- a. Other temperatures	Quotation on request	
Iodine Number, ASTM D1959	50 mL	37.50
Iron Determination	See Metals Determination	
JFTOT Thermal and Oxidative Stability of Turbine Fuel, ASTM D3241	1 L	295.00
Karl Fischer Water Determination, ASTM D1364, D4377, E203	100 mL	30.00
Kauri-Butanol Solvency No., ASTM D1133	150 mL	37.50
Kjeldahl Nitrogen, ASTM D3228	20 g	37.50
Knock Characteristics of Motor Gasoline, Motor Method, ASTM D2700	1 gal	85.00

Knock Characteristics of Motor Gasoline, Research Method, ASTM D2699	1 gal	85.00
Lead Alkyls, total in Gasoline	25 mL	75.00
Lead Corrosion Test, SOD, FTMS 791b, 5321.1	600 mL	
- a. 1 hour @ 325 F.		97.50
- b. 5 hours @ 375 F.		125.00
Lead Determination	See Metals Determination	
Lead in Gasoline, ASTM D3237	10 mL	75.00
Leakage Tendency of Automobile Wheel Bearing Grease,		
- ASTM D1263	150 g	175.00
- ASTM D4290, plus parts	150 g	175.00
Life Performance of Automobile Wheel Bearing Grease, ASTM D3527	150 g	
- 40 Hour Test Sequence, plus parts		375.00
- 80 Hour Test Sequence, plus parts		375.00
Load Carrying Capacity, Falex	200 mL	+ 77.50 + parts
Load Carrying Capacity, Load Wear Index, ASTM D2596, grease; ASTM D2783, oil. (includes no-seizure load and weld point)	200 mL	140.00 + parts
Load Carrying Capacity, Mean Hertz Load, FTMS 791b, 6503.2 (4-Ball E.P.)	400 mL	325.00 + parts
Load Carrying Capacity, SAE	225.00 + parts,	per RPM
Load Carrying Capacity, Universal Gear Lubricants, Timken, FTMS 791b, 6506.1		
- a. Liquids, ASTM D2782	1 gal	140.00 + parts
- b. Grease, ASTM D2509	5 lb	150.00 + parts
Loss on Heating, 5 hrs. @ 325 F., ASTM D6	100 g	65.00
Low Temperature Stability, FTMS 791b, 3458	200 mL	
- a. 72 hours at -40 F., first sample		225.00
- additional samples running at same time, each		50.00
- b. 72 hours at -65 F., first sample		225.00
- additional samples running at same time, each		50.00
- c. 72 hours at -80 F., first sample		265.00
- additional samples running at same time, each		75.00
- d. Storage for more than 72 hours	Quotation on request	

Low Temperature Torque, ASTM D1478	200 g	
- a. 60 F. and above		125.00
- b. 60 F. to -30 F.		150.00
- c. Below -30 F.		175.00
Low Temperature Torque of Grease Lubricated Wheel Bearings, ASTM D4693	150 g	295.00
Mackey Test, Spontaneous Heating Value, ASTM D3523	50 g	350.00 and up
Melting Point of Grease and Petrolatum, ASTM D127 and ASTM D566	20 g	65.00
Melting Point of Paraffin Wax, ASTM D87	50 g	65.00
Mercaptan Sulfur in Aviation Turbine Fuels and LPG, Amperometric Method, ASTM D1323		
- a. Aviation Turbine Fuel	300 mL	275.00
- b. LPG, routine method	1 lb	275.00
- c. LPG referee	3 lb	600.00
- d. LPG referee, after conversion of disulfides	5 lb	850.00
Mercaptan Sulfur in Gasoline, Kerosine, Aviation Turbine and Distillate Fuels, Potentiometric Method, ASTM D3227	300 ml	175.00
Mercaptans in LPG, Gas Chromatographic Method, per analyte	25 g	750.00 and up
- Disulfides Determination, per analyte	25 g	750.00 and up
Mercury Determination	See Metals Determination	
Mercury Freeze Test	500 mL	75.00
Metal Content of Gas Turbine Fuel, ASTM D2788, ASTM D3605		27.50 per metal And up
Metal Determination by Atomic Absorption or ICP analysis with organic standards in organic phases		27.50 per metal and up

Metals Determination by Atomic Absorption or ICP		Price per Sample
- Aluminum		27.50
- Antimony		27.50
- Barium		27.50
- Bismuth		45.00
- Cadmium		27.50
- Calcium		27.50
- Chromium		27.50
- Cobalt		27.50
- Copper		27.50
- Iron		27.50
- Lead		27.50
- Lithium		27.50
- Magnesium		27.50
- Manganese		27.50
- Molybdenum		27.50
- Nickel		27.50
- Potassium		27.50
- Silver		27.50
- Sodium		27.50
- Strontium		27.50
- Tin		27.50
- Titanium		27.50
- Vanadium		27.50
- Zinc		27.50
- Arsenic		145.00
- Beryllium		45.00
- Boron		50.00
- Mercury		225.00
- Selenium		145.00
- Silicon		60.00
- Tungsten		145.00
...Additional charge for trace analysis...		
Metal Determination by ICP or by Emission Spectrographic Analysis, each		175.00
- Gold		and up +
- Palladium		cost of
- Platinum		standards
- Thallium		
- Rare Earths		
Millipore Filter Color Rating of Jet Fuel	1 gal	65.00
Mineral Oil Separation from Grease	200 g	75.00 and up
Mini-Rotary Viscometer, Borderline Pumping Temperature (BPT), ASTM D3829		
- a. Determination of Actual BPT, per run, (3 or more required)		Quotation on Request
- b. Determination of Conformance to SAE J300		Quotation on Request

Miniaturized Corrosion and Oxidation 250 - 700 F.		"See Corrosion-Oxidation"
Mobility of Grease @ 0 F. (U.S. Steel Method)	2 lb	225.00
Moisture in Gas (Cobalt Bromide Method)	3 cu.ft	75.00
Moisture in Gas (Dew Point Method), ASTM D1142	3 cu.ft	125.00
Moisture in Gas (KF Method)	3 cu.ft	175.00
Moisture in LPG (Valve Freeze Method)	3 gal	95.00
Molecular Weight by Boiling Point Change	200 mL	250.00
Molecular Weight by Freezing Point Change	100 mL	250.00
Molecular Weight of Distillable Oils (UOP Method)	300 mL	87.50
Molecular Weight of Lubricating Oils, Estimation from Evaporation Rate, ASTM D2878	50 g	Quotation On Request
Molecular Weight of Petroleum Oils, Estimation from Viscosity, ASTM D2502	25 mL	75.00
Molybdenum Determination		See Metals Determination
MTBE by Gas Chromatographic Analysis	10 mL	275.00
Naphtha Insolubles	10 mL	45.00
Naphthalene Hydrocarbons in Aviation Turbine Fuels by UV Spectrophotometry, ASTM D1840	10 mL	125.00
Natural Gases, Flue Gas and Similar Mixtures, Analysis by Gas Chromatography	50 mL	375.00
Navy Gear Test, FTM 791c, 335.3 per load	10 g	250.00 + parts
Needle Penetration of Bituminous Materials, ASTM D5	100 g	35.00
Needle Penetration of Petroleum Waxes, ASTM D1321	100 g	
- a. At 77 F.		35.00
- b. At 100 F.		45.00
Neutralization Number, Colorimetric, ASTM D974	50 mL	25.00

Neutralization Number, Potentiometric, ASTM D664	50 mL	25.00
Nickel Determination Nitrate	See Metals Determination	125.00
Nitrate Esters in Diesel Fuel, VV-F-800C	25 mL	150.00
Nitrite		125.00
Nitrocellulose Dilution Ratio, ASTM D1720	100 mL	75.00
Nitrogen Oxides in Air and Combustion Gases		175.00
Nitrogen, ASTM D4629	1 g	30.00
Nitrogen, Kjeldahl, ASTM D3228	20 g	37.50
Non-volatile	10 g	30.00
Non-volatiles in LPG (O No. or R No.)	500 mL	75.00 each
Norma-Hoffman Oxidation, ASTM D942	50 g	
- a. 100 hours		70.00
- b. 200 hours		100.00
- c. 400 hours		175.00
- d. 100 hours with catalyst		77.50
Normal Pentane and Toluene Insolubles in Used Lubricating Oils, ASTM D893	20 mL	
- a. Without coagulant		50.00
- b. With coagulant		55.00
Octane Rating		
- a. Research Method, ASTM D2699	1 gal	85.00
- b. Motor Method, ASTM D2700	1 gal	85.00
- c. Aviation Gasoline	1 gal	95.00
Odorant in LPG, Amperometric method		
- a. As received, referee method	3 lb	600.00
- b. After conversion of disulfides	5 lb	850.00
Odorant in LPG, Gas Chromatographic Method, per analyte	25 g	750.00 and up
- Disulfide determination, per analyte	25 g	750.00 and up
Oil and Grease in Water (Hexane Soluble)	1 gal	50.00
Oil Content, Grease, ASTM D128	100 g	75.00 per run
Oil Content, Paraffin Wax, ASTM D721	50 g	87.50

Oil Number of LPG, (O Number)	500 mL	75.00
Oil Separation From Grease (Bleeding), ASTM D1742	1 lb	
- a. Ambient Temperature		47.50
- b. Other Temperatures	Quotation on request	
Oil Separation from Grease, FTMS 791b, 321.2	1 lb	47.50
Olefins and Aromatics in Petroleum Distillate	"See Hydrocarbon Types"	
Oxidation Characteristics of Extreme Pressure Oil, ASTM D2893	500 mL	175.00
Oxidation Characteristics of Inhibited Steam Turbine Oils, ASTM D943	2000 mL	250.00
- a. Additional Exposure per 100 hrs.		35.00
- b. Sludge	60.00 and up/run	
Oxidation Stability (Accelerated Method), ASTM D2274	500 mL	100.00
Oxidation Stability (UOP 413, Modified)	200 mL	250.00
Oxidation Stability by Rotating Bomb	250 mL	250.00
- Additional exposure after first - 6 hrs., per 6 hrs. or fraction		50.00
Oxidation Stability of Aviation Fuels, Potential Gum	"See Gum, Potential"	
Oxidation Stability of Gasoline	"See Gum, Potential"	
Oxidation Stability of Gasoline	"See Induction Period"	
Oxidation Stability of Inhibited Mineral Insulating Oils, IE6 474	200 mL	375.00
Oxidation Stability of Lubricating Greases, Oxygen, Bomb, ASTM D942		
- a. 100 hours		70.00
- b. 400 hours		175.00
- c. 100 hours, with catalyst		77.50
Oxidation Stability of Mineral Insulating Oil, ASTM D2440	200 mL	325.00
Oxidation Stability, Cincinnati Milacron Method	"See Thermal Stability"	
Oxidation Stability, IP 48	100 mL	220.00
Oxidation Stability, CIGRE, IP 280	250 mL	190.00
Oxidation Stability, IP 306	250 mL	300.00
Oxidation Test, British Air Ministry, IP 48/67		160.00
Oxidizing Substances Classification, UN 01,	500 g	1200.00
Oxidizing Substances, NFPA F=0, F=1, ASTM D6668	50 g	750.00

Panel Coking, FTMS 791b, 3462	600 mL	
- a. 600 F.		225.00
- b. 700 F.		240.00
- c. 800 F.		260.00
Panel Coking, RTD Modification, or FTMS 791b, 3462	600 mL	Quotation on request
Panel Preparation for Humidity or Salt Spray Tests, Sandblasted or Polished, per panel		30.00
Paraffin Wax Content of Petroleum Oil or Asphalt (UOP 46-64)	10 g	275.00
Particle Contamination, Total and Non-Combustible, ASTM D2276 or D5452	100 mL	65.00
- Including Filtration of More Than 100 mL		70.00
Particle Count, ARP 598A or ASTM F312	100 mL	70.00
- If 1-5 micron range is included		85.00
Particle Weight, ASTM F313	100 mL	65.00
Particulate Matter in Jet Turbine Fuel, Millipore Filter Color Rating, ASTM D2276 or D5452	1 gal	65.00
Penetration of Bituminous Materials, ASTM D5	100 g	25.00
Penetration of Grease @ 77 F.	450 g	
- a. Unworked		30.00
- b. Worked 60 reciprocal strokes		35.00
- c. Worked 100,000 reciprocal strokes		125.00
- d. 1/4 Scale (ASTM D1403)	5 g	35.00
- e. 1/4 Scale (ASTM D1403), worked 60 strokes	5 g	45.00
Penetration of Wax, ASTM D1321	100 g	
- a. At 77 F.		35.00
- b. At 100 F.		45.00
Peroxide No., ASTM D1832 or D3703	100 mL	35.00
pH Value	100 mL	20.00
Phase Separation, ASTM D4814	50 mL	50.00
Phenol	100 mL	97.50
Phosphate in De-icer Fluid	1000 mL	65.00
Phosphorus in Gasoline or Fuel, ASTM D3231	100 mL	65.00
Phosphorus in Lubricating Oil, ASTM D4047 or D4951	100 mL	65.00

Pollution Analysis, Air or Water		Quotation on request
PONA		"See Hydrocarbon Types"
Potassium Determination		See Metals Determination
Pour Point, ASTM D97		
- a. Above 30 F.		25.00
- b. From 30 F. to -20 F.		27.50
- c. From -20 F. to -50 F.		35.00
- d. Below -50 F.		50.00
Pour Point, Stable	500 mL	120.00
Pour Stability Characteristics of	250 mL	
Winter Grade Motor Oils, FTMS 791b, 203, 1959 ASTM App.V		
- (Cycle C) or		
- (Extended Cycle C)		Quotation on Request
Precipitation Number of Lubricating		
Oils, ASTM D91	100 mL	20.00
Preheating Temperature (Temperature		n/c with
at which Saybolt Universal Viscosity		two viscosity
is 150 SUS, Deg. F.)		determinations
Pressure Separation of Oil from		
Grease, ASTM D1742	1 lb	45.00
Pressure Viscosity, Isothermal,		
Ambient to 10,000 psi		Quotation on request
Protection Test, Galvanic Corrosion	50 mL	75.00
Protection Test, Salt Water Spray,		
ASTM B117		
- a. Panel Preparation, each		30.00
- b. Exposure, per specimen/hour		0.20
- c. Minimum exposure charge		75.00
- d. Synthetic Sea Water, 4%, 5% or 20%		
- salt solution, cabinet set-up charge		75.00
Quenchometer, GM, ASTM D3520	500 mL	145.00
Quinoline Insoluble, ASTM D893,mod.	200 mL	175.00
Ramsbottom Carbon Residue on		
10% Residuum	200 mL	55.00
Ramsbottom Carbon Residue, ASTM D524	25 mL	40.00
Reaction Threshold Temperature at		
Reduced or Elevated Pressure,	100 mL	Quotation
ASTM D2883		on request
Reaction Threshold Temperature,	100 mL	Quotation
FTMS 791b, 5050		on request
Reduced Pressure Distillation of		
Petroleum Products, ASTM D1160	500 mL	275.00
Refractive Index at 20 C.	10 mL	25.00
Reid Vapor Pressure, ASTM D323	1000mL	25.00

Reserve Alkalinity of Anti- Freeze, ASTM D1121	100 mL	60.00
Residue of Specified Penetration, ASTM D243, per Distillation + Pen.	300 g	Quotation on Request
Residue, LPG, R. Number	100 mL	75.00
Residue, Mercury Freeze Test	500 mL	75.00
Resistance of Grease to Aqueous Solutions, FTMS 791b, 5415	100 g	70.00
Resistance of Grease to Fuel, FTMS 791c, 5414.4, par.6.1 or par.6.2	100 g	70.00
Roll Stability of Grease	"See Consistency"	
Rotating Bomb, Oxidation Stability (6 hrs. or less)	250 mL	250.00
- Additional exposure, per 6 hr. period		50.00
Rubber Swelling	400 mL	
- a. 158 F. to 400 F., - FTMS 791c, 3603.5 and 3604.2		87.50
- b. In liquid and vapor phase		125.00
- with o-rings		+ parts
Rubber Swelling Index	100 mL	75.00
Rubber Swelling, 158 F. to 400 F., Including change in Durometer Hardness, Elongation and Tensile Strength	400 mL	225.00
Rubber Swelling, o-rings in liquid and vapor (Allison Method)	400 mL	125.00 + parts
Rust Preventive Characteristics of Steam Turbine Oil, ASTM D665, per run	600 mL	
- a. Distilled Water, Procedure A		65.00
- b. Synthetic Sea Water, Procedure B		75.00
- c. Procedure C		85.00
Rust Preventive Characteristics, Horizontal Disc Method, ASTM D3603, per run	600 mL	125.00
Rust Preventive Properties of Lubricating Grease, ASTM D1743	1/4 lb	195.00
Alternate Method (Appendix X.2)	225.00	+ parts + parts
Rust Protection, Static Water Drop, FTMS 791b, 5311	50 mL	50.00
Rust Protection FTM 791c, 5329.2	500 mL	200.00
SAE Load Carrying Capacity, 500 RPM or 1000 RPM	1000 mL	225.00 + parts (per RPM)
Salt Determination, Fuel Oil or Crude Oil	500 mL	
- a. UOP Method B		60.00
- b. From Leachable Sodium and Chloride Ions		65.00

Salt Spray Test, ASTM B117	250 mL	
- "See Protection Test, Salt Water Spray"		
Salt Water Immersion	500 mL	50.00 + parts
Salt Water Immersion, MIL-L-21260C	500 mL	130.00
Saponification Number, Colorimetric, ASTM D94	25 g	30.00
Saybolt Color, ASTM D156	250 mL	22.50
Sediment by Extraction, ASTM D473	50 g	25.00
Sediment in Jet Fuel (Filter 1 gallon or 1 litre)	1 gal	65.00
Sediment, Millipore Filtration	100 mL	
- a. Light oils or fuels(incl.non-combustibles)		65.00
- b. Heavy oils or oils with sludge		65.00 and up
Sediment, Trace (by centrifuge), ASTM D2709 or D2273	250 mL	20.00
Sediment and Soluble Sludge, ASTM D1698		150.00
Separation Characteristics of Universal Gear Lubricants, FTMS 791b, 3455.1	500 mL	57.50
Separation of Oil from Grease, FTMS 791b, 321.2	50 g	45.00
Separation of Oil from Lubricating Greases at Room Temperature, ASTM D1742	1 lb	45.00
Separation of Saponifiable or Unsaponifiable, each		90.00
Shear Stability, Sonic Shear, ASTM D2603	250 mL	
- a. Basic Test		165.00
- b. Low Temperature Viscosity, if required by specification, (4 required), each		50.00
- c. Neutralization Numbers, if required by specification, (2 required), each (ASTM D664)		25.00
Shell 4-Ball Wear Test, ASTM D2266	50 g	
- a. Below 300 F.		50.00
- b. 300 F. and above		75.00
- c. 2 hour test		30.00 Addt'l
Silica		
- a. Direct Method (by ICP)	10 g	60.00
- b. Silica and Complex Silicates	20 g	65.00
- b. Chemical Method	20 g	75.00
Silicon Determination	See Metals Determination	
Silicone Antifoam Agent	10 mL	60.00
Silver Corrosion, IP 227	500 mL	150.00
Silver Determination	See Metals Determination	
Sludge		65.00 and up

Sludge Determination in Mineral Transformer Oil	150 mL	175.00 + Iodine No.
Smoke Point, ASTM D1322	250 mL	42.50
Smoke Volatility Index, ASTM D1322 and D86	500 mL	75.00
Soap Content of Grease, ASTM D128	200 g	90.00
SOD Lead Corrosion, FTMS 791b, 5321.1		
- a. 1 hour @ 325 F.		97.50
- b. 5 hours @ 375 F.		125.00
Sodium Determination	See Metals Determination	
Softening Point of Bituminous Materials, Ring and Ball Method, ASTM D36	50 g	65.00
Softening Point of Tar Products, Cube-in Water Method, ASTM D61	50 g	65.00
Solids, Millipore Filtration, Filter 100 mL Total and Non-combustible Particulate		
- a. Light Oil		65.00
- b. Heavy Oil		75.00
- c. Filter more than 100 mL		75.00 and up
Solubility of Grease in Fuel, FTMS 791b, 5415	100 g	75.00
Solvent Extractables in wax, ASTM D3235	50 g	125.00
Specific Gravity 60/60 F.		
- a. Asphalts, ASTM D71, 60/60 F.	25 g	37.50
- b. Gaseous Fuels 60/60 F.	250 mL	375.00
- c. LPG, 60/60 F.	500 g	75.00
- d. Fluids, 60 F., 68 F., 77 F.	25 g	25.00
- e. Fluids, 100 F., 130 F., 210 F.	25 g	30.00
- f. Other Temperatures, -80 F. to 700 F.		Quotation on request
Specific Heat of Solids and Liquid, ASTM D2766	200 mL	
- a. 100 F. to 400 F., inclusive, Liquids		1500.00
- b. 100 F. to 400 F., inclusive, Solids		1500.00
- c. Other temperatures		Quotation on request
- NOTE: Vapor Pressure data may be required for samples of high volatility at test temperatures.		
- Vapor Pressure by Isoteniscope, ASTM D2879-includes heat of vaporization		350.00
Spectrographic Analysis to Determine Metal Constituents	10 g	
- a. Qualitative (solids or liquids)		45.00
- b. Quantitative (oils only)		40.00

Spontaneous Heating Value, Differential Mackey Test, ASTM D3523	10 g	350.00 and up
Stability Characteristics, Pour Point, FTMS 791b, 203 - a. Cycle C - b. Extended Cycle C	200mL Quotation on Request	
Stability Test, Gear Oil, 100 hrs. @ 300 F. (Heat Test)	500 mL	225.00
Stability Test, Oxidation Characteristics of Extreme Pressure Oils, ASTM D2893		175.00
Stability, Low Temperature, Liquids	"See Low Temperature Stability"	
Stable Pour Point	500 mL	120.00
Static Copper Corrosion, FTMS 791b, 5305 - a. 450 F. - b. 600 F.	250 mL	150.00 300.00
Static Heat Test (U. S. Steel)	250 g	195.00
Static Silver Corrosion, FTMS 791b, 5305 - a. 450 F. - b. 600 F.	250 mL	150.00 300.00
Static Water Drop, FTMS 791b, 5311	50 mL	50.00
Steam Emulsion, ASTM D1935 or IP 19/76	100 mL	85.00 per run
Steel Strip Corrosion		25.00
Storage Stability, SOD	Quotation on request	
Strong Acid Number, ASTM D664	10 mL	25.00
Strong Base Number, ASTM D664	10 mL	25.00
Sugar (Substances capable of reducing Fehling's solution before inversion and after inversion) - a. Qualitative - b. Quantitative	25 mL	35.00 87.50
Sulfated Ash, ASTM D874		30.00
Sulfate, Trace, ASTM D5452		90.00
Sulfur Content of LPG, ASTM D5453	100 g	150.00
Sulfur Content of Natural Gas, ASTM D1072	100g	150.00
Sulfur Dioxide in Ambient Air and Combustion Gases, Analysis of Absorber Solution		150.00
Sulfur Trioxide (or Sulfuric Acid Mist), analysis of absorber solution	+ Sulfur Dioxide Determination	150.00

Sulfur, Active, ASTM D1662 (including total sulfur)	100 g	85.00
Sulfur, Corrosive, Copper Strip, ASTM D130	50 mL	20.00 and up
Sulfur, UV Fluorescence, ASTM D5453	5 g	85.00
Sulfur, Total, ASTM D129 (Volatile liquid)	10 g	40.00
Sulfur, Total, ASTM D129	10 g	35.00
Sulfur, Total, ASTM D1266	30 g	85.00
Sulfur, Trace, UV Fluorescence, ASTM D5453	25 g	85.00
Sulfur, Trace, Lamp or Bomb Method, ASTM D129 or ASTM D1266, Appendix I, modified	25 g	85.00
Sulfur, X-Ray Method, ASTM D4294	30 mL	30.00
Surface Tension @ 77 F, ASTM D1331 (Plus required density determination)	100 g	77.50
- a. Other Temperatures		Quotation on request
Swelling of Synthetic Rubbers, FTMS 791c, 3603.5 or 3604.2		"See Rubber Swelling"
Tetraethyllead, ASTM D3237		75.00
Tetraethyllead-Tetramethyllead, Total in Gasoline	10 mL	75.00
Thermal Conductivity of Liquids, ASTM D2717	100 mL	
- a. 100 F. to 200 F., per temperature		750.00
- b. 32 F., per temperature		750.00
- c. 200 F. to 500 F., per temperature		850.00
Thermal Stability of Aviation Turbine Fuels, ASTM D3241	1 L	295.00
Thermal Stability of Grease, FTMS 791b, 2503.2	25 g	40.00
Thermal Stability of Hydraulic Fluid, MIL-H-27601, per run	50 mL	275.00
Thermal Stability of Hydraulic Fluid, ASTM D2160, per run	50 mL	275.00
Thermal Stability of Hydraulic Fluid, MIL-L-23699, per run	50 mL	275.00
Thermal Stability, FTM 791c 3411.1	50 mL	300.00
Thermal Stability, FTM 791c, 2508.1	50 mL	350.00

Vapor Pressure, LPG, ASTM D1267	3000 mL	75.00
Vapor Pressure, Reid, ASTM D323	1000 mL	25.00
Viscosity by Cold Cranking Simulator, ASTM D5293		Quotation on Request
Viscosity Index (includes viscosity determinations at 40 C. and 100 C)	100 mL	55.00
Viscosity of Volatile and Reactive Liquids (Vulnerable Fluids), ASTM D4486	20 mL	175.00 and up
Viscosity Stability @ -40 F. or -65 F., FTMS 791b, 307.1 or ASTM D2532	50 mL	
- a. For 3 hours		175.00
- b. For 72 hours		Quotation on request
Viscosity, Absolute, ASTM D445	100 mL	
- Above prices for viscosity + density at test temperature		
Viscosity, Apparent, ASTM D1092	2 lbs	
- a. 75 F. to 115 F.		150.00
- b. -20 F. to 75 F.		175.00
- c. -21 F. to -100 F.		225.00
Viscosity, Stormer, ASTM D562	1 L	135.00
Viscosity, Apparent, Brookfield	500 mL	
- a. @ 77 F.		95.00
- b. @ 0 F.		100.00
- c. -10 F., -20 F., -30 F., or -40 F., each		225.00
Viscosity, Apparent, Brookfield, ASTM D2983	50 mL	95.00
Viscosity of wax, ASTM D3236	500 g	150.00

Viscosity, ASTM D88 or D445		
- a. -100 F.		125.00
- b. -65 F.		50.00
- c. -40 F.		50.00
- d. -20 F.		50.00
- e. 0 F.		35.00
- f. 40 C.		25.00
- g. 130 F.		30.00
- h. 100 C.		30.00
- i. Above 100 C. (Also See Viscosity of Vulnerable Fluids)		50.00 and up
- j. Odd Temperatures, 32 F. to 210 F.		50.00
- k. Odd Temperatures, 210 F. to 400 F.		75.00
- l. Reverse flow viscosity @ 40 C. or 100 C.		40.00
- m. 100 F. or 210 F.		35.00
- n. Saybolt Viscosity @ 100 F. or 210 F.		35.00
Viscosity, Inherent (Intrinsic) of Polymers, ASTM D2857	10 g	250.00
Visual Water		10.00
- With Qualitative Water Test		15.00
VOC, EPA24 or EPA24A		250.00
- Additional Charge For Water by GC		150.00
Volatile Matter in Coal or Coke	200 mL	40.00
Volatility, FTMS 791b, 3480	50 mL	30.00
Water and Sediment, ASTM D1796	200 mL	20.00
Water and Particulate, Haze, ASTM D4176	1 L	35.00
Water and Sediment, ASTM D4007	200 mL	35.00
Water by Distillation, ASTM D95	100 mL	20.00
Water Content of Grease, ASTM D128	100 g	25.00
Water Content of Oil and Grease Karl Fischer, ASTM D1533, E203, D4377	100 mL	30.00
Water Displacement and Water Stability, FTMS 791c, 3007.2	500 mL	175.00
Water Immersion, FTMS 791c, 3463.2	35 g	30.00
Water in Insulating Oils by Extraction, ASTM D1315	200 g	195.00
Water in Natural Gas and LPG by the Cobalt Bromide Method	3 gal or 3 cu.ft	75.00
Water Resistance of Grease, ASTM D1264	200 g	
- a. @ 100 F.		70.00
- b. @ 175 F.		80.00
Water Separation, MSEP-A or MSEP-B, ASTM D3948	100 mL	150.00
Water Leachable Sodium Chloride or Fluoride, Each		90.00

Water Soluble Anions, Viscosity Oil Co. Method		
- a. Chlorides (ASTM D512)		85.00
- b. Nitrates (ASTM D1608)		85.00
- c. Nitrates (APHA 418B, ASTM D992 - or phenol disulfonic acid method)		85.00
- d. Sulfides (APHA 4500 S-2)		85.00
Water Soluble Chloride		30.00
- Trace		85.00
Water Sensitivity		275.00
Water Spray Resistance of Grease, ASTM D4049	200 g	92.50
Water Tolerance of Aviation Fuels, Water Reaction Test, ASTM D1094	50 mL	27.50
Water Tolerance, Ford BJ-10-3	500 mL	175.00
Water Vapor Content of Gaseous Fuels (Cobalt bromide method)	3 gal	45.00
Water Washout Characteristics of Greases, ASTM D1264, per run	200 g	
- a. 100 F.		70.00
- b. 175 F.		80.00
Water-Vapor Content of Gaseous Fuels by Measurement of Dew Point Temperature, ASTM D1142	3 cu.ft	100.00
Wax Appearance Point of Distillate Fuel, ASTM D3117	200 mL	65.00
Wax Content of Petroleum Oil and Asphalt (UOP 46-64)	10 g	250.00
Wear Test (Falex)	100 ml.	77.50 + parts
Wear Test, Shell 4-Ball, ASTM D2266 and ASTM D4172		
- a. Below 300 F.	50 g.	50.00
- b. 300 F. and higher	50 g.	75.00
- c. 2 hour test		30.00 Addt'l
Wear Test, Distillate Fuels, BOTS	50 mL	175.00 + Parts
Weathering of LPG (R No. or O No.)	200 ml.	75.00 each
Weatherometer Exposure		
- a. Preparation of specimens, ea.		30.00 and up
- b. First specimen, per hour		7.00
- c. Additional specimens, per specimen hour		0.50 + cost of electrodes
- Minimum exposure charge, per sample		85.00

Wheel Bearing Grease, Performance Characteristics, ASTM D1263	200 g.	175.00
Worked Stability of Grease, Shell Roll	200 g.	
- a. 100 hrs. @ 150 F., MIL-G-10924B		250.00
- b. 2 hrs. at ambient temperature, - ASTM D1831		95.00
Workmanship	200 ml.	20.00
Zinc Determination	See Metals Determination	

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H) Minimum billing \$30.00

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