

Tests by Method

Gold bullets indicate ISO/IEC 17025:2017 Accreditation

Method	Test Description	Sample Size
ASTM D86	Distillation	400 mL
● ASTM D92	Fire Point, Cleveland Open Cup	250 mL
● ASTM D92	Flash Point and Fire Point, Cleveland Open Cup	250 mL
● ASTM D92	Flash Point, Cleveland Open Cup	250 mL
● ASTM D93	Flash Point, Pensky-Martins Closed Cup	250 mL
ASTM D94	Saponification Number	25 g
● ASTM D97	Pour Point	100 mL
ASTM D130	Copper Strip Corrosion	100 mL
ASTM D156	Color (Saybolt Chromometer Method)	250 mL
ASTM D189	Carbon Residue, Conradson	50 mL
ASTM D217	Cone Penetration, Unworked and 60 Strokes (Grease)	800 g
ASTM D240	Gross Heat of Combustion (Specify BTUs/Gallon or /Pound)	20 mL
ASTM D287	API Gravity of Crude Petroleum / Petroleum Products (Hydrometer)	250 mL
ASTM D323	Reid Vapor Pressure	125 mL
● ASTM D445	Kinematic Viscosity, 0°C and Above	125 mL
● ASTM D445	Kinematic Viscosity, 40°C or 100°C, New Oil	125 mL
● ASTM D445	Kinematic Viscosity, Below 0°C	125 mL
● ASTM D445	Kinematic Viscosity, Used or In-Service Oil	125 mL
ASTM D482	Total Ash	80 g
ASTM D524	Carbon Residue, Ramsbottom	50 mL
ASTM D525	Oxidation Stability (Gasoline)	200 mL
ASTM D566	Dropping Point Grease	50 g
ASTM D611	Aniline Point	100 mL
ASTM D613	Cetane Number	1 L
● ASTM D664	Acid Number	50 mL
ASTM D665	Rust Prevention 4 Hours (Method A or B)	1 L
ASTM D665	Rust Prevention 24 Hours (Method A or B)	1 L
● ASTM D874	Sulfated Ash	50 g
ASTM D877	Dielectric Breakdown Voltage	800 mL
● ASTM D892	Foaming, Sequence I - III (Specify Option A if Required)	1 L
● ASTM D892 & D6082	Foaming, Sequence I - IV (Specify Option A if Required)	1 L
ASTM D893	Insolubles, Pentane	25 mL
ASTM D924	Dissipation/Power Factor	500 mL
ASTM D942	Oxidation Stability (Grease) 100 Hours	150 mL
ASTM D943	Oxidation Characteristics (2.0 TAN or 1000 Hours)	600 mL
ASTM D943	Oxidation Characteristics (2.0 TAN or 2000 Hours)	600 mL
ASTM D943	Oxidation Characteristics (2.0 TAN or 3000 Hours)	600 mL
ASTM D972	Evaporation Loss (Grease) - Specify Time and Temperature	150 mL
ASTM D974	Acid Number	50 mL
ASTM D974	Base Number	50 mL
ASTM D976 & D4737	Cetane Index (Calculated from D1298 and D86)	500 mL
ASTM D1084 B	T-Bar Viscosity	Varies
ASTM D1092	Apparent Viscosity, Grease	500 g
ASTM D1177	Freeze Point	100 mL
ASTM D1120	Boiling Point of Coolants	100 mL
ASTM D1218	Refractive Index	20 mL
ASTM D1264	Water Washout (Single Bearing/Single Temperature)	50 g
ASTM D1264	Water Washout (Two Bearings Per Method/Single Temperature)	100 g
ASTM D1298	Density / API Gravity, Hydrometer	350 mL
ASTM D1319	Hydrocarbon Type	40 mL
ASTM D1331	Surface Tension	100 mL



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ASTM D1401	Emulsion Characteristics, Water Separability	100 mL
ASTM D1403	Cone Penetration, 1/4 or 1/2 Scale	100 g
ASTM D1404	Harmful Particles in Grease	30 g
ASTM D1478	Low Temperature Torque	10 g
ASTM D1500	Color	150 mL
ASTM D1662	Sulfur, Active	100 g
ASTM D1742	Oil Separation, Storage of Greases	300 g
ASTM D1743	Rust Prevention Properties of Grease	50 g
ASTM D1748	Rust Protection by Humidity Cabinet	1 L
ASTM D1768	Water and Sediment for Opaque or In-Service Oils	100 mL
ASTM D1831	Roll Stability of Grease	100 g
ASTM D1957	Hydroxyl Number	25 mL
ASTM D2007	Clay Gel Analysis	100 mL
ASTM D2008	UV Absorbance to Absorptivity	10 mL
ASTM D2070	Thermal Stability (Hydraulic Fluids)	300 mL
ASTM D2112	Oxidation Stability of Inhibited Oil by Pressure Vessel at 140°C	150 mL
ASTM D2155	Auto-Ignition Temperature (Hydraulic Fluids)	10 mL
ASTM D2265	Dropping Point	50 g
ASTM D2266	Four Ball Wear (Grease)	100 g
● ASTM D2270	Viscosity Index (Includes D445 at 40°C and 100°C)	125 mL
● ASTM D2272	Rotating Bomb Oxidation Test (RBOT) Single Run	150 mL
● ASTM D2272	Rotating Pressure Vessel Oxidation Test (RPVOT) Single Run	150 mL
● ASTM D2272	RPVOT, Run to End-of-Test, Hard Break	150 mL
ASTM D2273	Trace Sediment	200 g
ASTM D2274	Oxidation Stability (Petroleum Fuel Oil)	2 L
ASTM D2500	Cloud Point	100 mL
ASTM D2509	Timken OK Load for Grease (Specify Starting Load)	3400 g
ASTM D2532	Viscosity Stability at Low Temperature	125 mL
ASTM D2595	Evaporation Loss, Grease, Wide Temperature Range	25 g
ASTM D2596	Four Ball Extreme Pressure (Grease) Up to 400 kg	500 g
ASTM D2596	Four Ball Extreme Pressure (Grease) Above 400 kg	500 g
ASTM D2603	Sonic Shear, Oils	100 mL
ASTM D2619	Hydrolytic Stability	250 mL
● ASTM D2622	Sulfur by XRF - Wavelength Dispersive	30 mL
ASTM D2670	Falex Pin & Vee Wear	200 mL
ASTM D2699	Octane Number (Research Rating)	800 mL
ASTM D2700	Octane Number (Motor Rating)	800 mL
ASTM D2709	Water and Sediment	100 mL
ASTM D2711	Demulsibility - Procedure A (No EP Additives)	2 L
ASTM D2711	Demulsibility - Procedure B (Contains EP Additives)	2 L
ASTM D2714	Block on Ring Friction and Wear	200 mL
ASTM D2717	Thermal Conductivity - Single Temperature	100 mL
ASTM D2782	Timken Extreme Pressure (Specify Starting Load)	4 L
ASTM D2783	Four Ball Extreme Pressure Up to 400 kg.	200 mL
ASTM D2783	Four Ball Extreme Pressure Above 400 kg.	200 mL
ASTM D2879	Vapor Pressure by Isoteniscope, Single Temperature	10 mL
ASTM D2879	Vapor Pressure by Isoteniscope, Multiple Temperatures	10 mL
● ASTM D2887	Gas Chromatography - Carbon Distribution Extended	10 mL
ASTM D2893	Oxidation Characteristics Extreme Pressure	500 mL
● ASTM D2896	Base Number	50 mL
ASTM D2982	Glycol-Base Antifreeze in Used Oils	20 mL
● ASTM D2983	Brookfield Viscosity, +20°C to -60°C (Per Temperature)	60 mL



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ASTM D3233	Falex Extreme Pressure	200 mL
ASTM D3238	Carbon Distribution Analysis	250 mL
ASTM D3336	High Temperature Bearing Performance Up to 600 Hours	50 g
ASTM D3427	Air Release, Gas Bubble Separation	500 mL
ASTM D3520	Quenching Time	600 mL
● ASTM D3524	Fuel Dilution, Diesel (Requires 250 mL of new oil and fuel)	10 mL
● ASTM D3525	Fuel Dilution, Gasoline	10 mL
ASTM D3527	High Temperature Life, Wheel Bearing Grease	120 g
ASTM D3703	Peroxide Value	200 mL
● ASTM D3829	Mini-Rotary Viscosity (MRV), Single Temperature	200 mL
ASTM D4048	Copper Strip Corrosion, Grease	100 g
ASTM D4049	Resistance of Lubricating Grease to Water Spray	25 g
ASTM D4052	Specific Gravity (Includes API Gravity)	50 mL
ASTM D4170	Fretting Wear, Grease	40 g
ASTM D4172	Four Ball Wear	100 mL
ASTM D4287	High-Shear Viscosity Using a Cone/Plate Viscometer	10 mL
ASTM D4289	Elastomer Compatibility NBR L and CR Grease	400 g
ASTM D4289	Elastomer Compatibility NBR L or CR Grease	200 g
ASTM D4290	Leakage of Wheel Bearing Grease	200 g
ASTM D4291	Glycol	5 mL
ASTM D4294	Sulfur by XRF - Energy Dispersive	10 mL
ASTM D4310	Sludging & Corrosion Tendency Up to 1000 Hours	1 L
ASTM D4530	Carbon Residue, Micro	150 mL
● ASTM D4629	Nitrogen by Chemiluminescence	30 mL
● ASTM D4683	High Temperature High Shear / TBS Viscosity, 150°C, New Oil	150 mL
● ASTM D4683	High Temperature High Shear / TBS Viscosity, 150°C, Used Oil	150 mL
● ASTM D4683 Mod.	High Temperature High Shear / TBS Viscosity, Multi-Temp., Multi-Shear	150 mL
● ASTM D4683 Mod.	High Temperature High Shear / TBS Viscosity, Other Shear	150 mL
● ASTM D4683 Mod.	High Temperature High Shear / TBS Viscosity, Other Temperature	150 mL
● ASTM D4683 Mod.	High Temperature High Shear / TBS Viscosity, Below 50°C	150 mL
● ASTM D4684	TP-1 MRV Viscosity, Single Temperature	100 mL
ASTM D4693	Low Temperature Torque, Wheel Bearing Grease	50 g
ASTM D4737	Cetane Index (Calculated from D1298 and D86)	500 mL
● ASTM D4739	Base Number	20 mL
ASTM D4742	Thin Film Oxidation Uptake Test (TFOUT) Gas Engine Oils	50 mL
ASTM D4927	Sulfur Content for Automatic Transmission Fluid by XRF	30 mL
● ASTM D4951	Elemental Analysis by Inductively Coupled Plasma, Wear Metals (No S)	10 mL
● ASTM D5133	Gelation Index	50 mL
● ASTM D5133	Scanning Brookfield Viscosity (-5°C to -40°C)	50 mL
● ASTM D5133	Scanning Brookfield Viscosity, Extended Temperature Range	50 mL
ASTM D5182	FZG Gear Test - Up to 12 Stages	2 L
ASTM D5182	FZG Gear Test - Up to 14 Stages	2 L
ASTM D5183	Coefficient of Friction by Four Ball	100 mL
● ASTM D5185	Elemental Analysis by Inductively Coupled Plasma (No S)	10 mL
● ASTM D5185	Sulfur by Elemental Analysis by Inductively Coupled Plasma	10 mL
ASTM D5186	Aromatics in Diesel Fuel	150 mL
ASTM D5275	Fuel Injector Shear Stability (FISST), 20 Passes	500 mL
ASTM D5275	Fuel Injector Shear Stability (FISST), 30 Passes	500 mL
ASTM D5275	Fuel Injector Shear Stability (FISST), 40 Passes	500 mL
ASTM D5275	Fuel Injector Shear Stability (FISST), Other Passes	500 mL
ASTM D5291	Carbon, Hydrogen and Nitrogen Content	30 mL
ASTM D5291	Nitrogen - Carlo Erba	30 mL



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Method	Test Description	Sample Size
• ASTM D5293	Cold Cranking Simulator, Single Temperature	120 mL
ASTM D5293 Mod.	Cold Cranking Simulator, Temperature Scan	120 mL
• ASTM D5453	Sulfur	10 mL
• ASTM D5453 & D5762	Sulfur and Nitrogen Package	20 mL
ASTM D5483	Oxidation Stability of Greases by PDSC	10 g
ASTM D5554	Iodine Value	60 mL
ASTM D5620	Drain and Dry Mode Using Falex Pin & Vee Block Test Machine	100 mL
ASTM D5621	Sonic Shear, Hydraulic Fluids	100 mL
• ASTM D5762	Nitrogen	10 mL
ASTM D5769	Benzene, Toluene, Total Aromatics by GC/MS	10 mL
• ASTM D5800	Noack Volatility	150 mL
ASTM D5827	Sulfate Analysis (SO4)	30 mL
ASTM D5972	Freeze Point	100 mL
ASTM D6079	Lubricity by HFRR	10 mL
• ASTM D6082	Foaming, Sequence IV (Specify Option A if Required)	1 L
ASTM D6130	Elemental Analysis by ICP, Aqueous / Coolants / Sulfur, 5 elements	10 mL
ASTM D6184	Oil Separation Percent, Wire Cone Method	100 g
ASTM D6186	Oxidation Induction Time by PDSC	20 mL
ASTM D6200	Cooling Curve Analysis of Quench Oils	1.5 L
ASTM D6217	Particulate Contamination for Diesel Fuels	1 L
• ASTM D6278	Kurt Orbahn Shear Stability, 30 Passes	1 L
• ASTM D6278 Mod.	Kurt Orbahn Shear Stability, 100 Passes	1 L
• ASTM D6278 Mod.	Kurt Orbahn Shear Stability, Custom Number of Passes	1 L
• ASTM D6278 Mod.	Kurt Orbahn Shear Stability, 90 Passes	1 L
• ASTM D6304	Water by Karl Fischer	100 mL
• ASTM D6335	Thermo-oxidation Engine Oil Simulation Test (TEOST 33C)	250 mL
ASTM D6371	Cold Filter Plug Point	150 mL
ASTM D6375	Noack Volatility by TGA	20 mL
• ASTM D6417	Simulated Distillation by Gas Chromatography	10 mL
• ASTM D6443	Chlorine by XRF	30 mL
ASTM D6557	Ball Rust Test	125 mL
ASTM D6560	Asphaltene Content	25 g
ASTM D6594	High Temperature Corrosion Bench Test at 135°C	300 mL
• ASTM D6616	High Temperature High Shear / TBS Viscosity, 100°C, New Oil	150 mL
• ASTM D6616	High Temperature High Shear / TBS Viscosity, 100°C, Other Shear	150 mL
• ASTM D6616	High Temperature High Shear / TBS Viscosity, 100°C, Used Oil	150 mL
ASTM D6793	Bulk Modulus, Up to 80°C	200 mL
ASTM D6794	Engine Oil Water Tolerance (EOWT)	1 L
ASTM D6795	Engine Oil Filterability (EOFT)	1 L
ASTM D6922	Homogeneity & Miscibility	300 mL
• ASTM D7097	Thermo-oxidation Engine Oil Simulation Test (TEOST MHT-4)	50 mL
ASTM D7098	Thin Film Oxygen Uptake Test (TFOUT) Catalyst B	50 mL
• ASTM D7109	Kurt Orbahn Shear Stability - Includes 30 and 90 Passes	1 L
ASTM D7214	FTIR Analysis, Oxidation by Peak Area Increase	50 mL
• ASTM D7216	GF-5 Elastomer Compatibility, ACM, Polyacrylate	1.2 L
• ASTM D7216	GF-5 Elastomer Compatibility, FKM, Fluoroelastomer	1.2 L
• ASTM D7216	GF-5 Elastomer Compatibility, HNBR, Nitrile	1.2 L
• ASTM D7216	GF-5 Elastomer Compatibility, MAC, Ethylene Acrylate	1.2 L
• ASTM D7216	GF-5 Elastomer Compatibility, VMQ, Silicone	1.2 L
• ASTM D7216	GF-6 Elastomer Compatibility, ACM, Polyacrylate	1.2 L
• ASTM D7216	GF-6 Elastomer Compatibility, FKM, Fluoroelastomer	1.2 L
• ASTM D7216	GF-6 Elastomer Compatibility, HNBR, Nitrile	1.2 L

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Method	Test Description	Sample Size
● ASTM D7216	GF-6 Elastomer Compatibility, MAC, Ethylene Acrylate	1.2 L
● ASTM D7216	GF-6 Elastomer Compatibility, VMQ, Silicone	1.2 L
● ASTM D7216	GM dexos1:2015 Elastomer Compatibility, ACM Polyacrylate	1.2 L
● ASTM D7216	GM dexos1:2015 Elastomer Compatibility, FKM, Fluoroelastomer	1.2 L
● ASTM D7216	GM dexos1:2015 Elastomer Compatibility, HNBR, Nitrile	1.2 L
● ASTM D7216	GM dexos1:2015 Elastomer Compatibility, VMQ, Silicone	1.2 L
● ASTM D7216	HDD Elastomer Compatibility, ACM, Polyacrylate	1.2 L
● ASTM D7216	HDD Elastomer Compatibility, FKM, Fluoroelastomer	1.2 L
● ASTM D7216	HDD Elastomer Compatibility, MAC, Vamac	1.2 L
● ASTM D7216	HDD Elastomer Compatibility, NBR, Nitrile	1.2 L
● ASTM D7216	HDD Elastomer Compatibility, VMQ, Silicone	1.2 L
ASTM D7317	Pentane Insolubles by Filtration	25 mL
ASTM D7321	Particulate Contamination for Biodiesel Fuels	1 L
ASTM D7371	FAME Fatty Acid Methyl Esters Content in Diesel Fuel Oil	100 mL
● ASTM D7412	FTIR Analysis, In-Service Fluid, Phosphate Anti-Wear	50 mL
● ASTM D7414	FTIR Analysis, In-Service Fluid, Oxidation	50 mL
● ASTM D7415	FTIR Analysis, In-Service Fluid, Sulfate Content	50 mL
ASTM D7462	Oxidation Stability (Biodiesel)	2 L
ASTM D7462	Oxidation Stability (Biodiesel - B100 Option)	2 L
ASTM D7563	Emulsion of Water and Simulated Ed85 Fuel	500 mL
ASTM D7619/ISO 4406	Particle Count and Sizing	500 mL
● ASTM D7624	FTIR Analysis, In-Service Fluid, Nitration	50 mL
● ASTM D7844	FTIR Analysis, In-Service Fluid, Soot	50 mL
ASTM E659	Auto-Ignition Temperature, Liquid Chemicals	10 mL
ASTM E1131	TGA Soot	5 mL
ASTM E1269	Specific Heat	100 mL
ASTM E1858	Oxidation Induction Time by PDSC	25 g
● ASTM E2412	FTIR Analysis, In-Service Fluid	50 mL
CEC L-036-90 Modified	High Temperature High Shear Viscosity, 150°C, New Oil	150 mL
CEC L-036-90 Modified	High Temperature High Shear Viscosity, 150°C, Used Oil	150 mL
● CEC L-45-99 Mod. & D445	KRL Shear 04 Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D445	KRL Shear 08 Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D445	KRL Shear 20 Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D445	KRL Shear 30 Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D445	KRL Shear 40 Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D445	KRL Shear Custom Hours + 1 Temperature pre & post shear KV	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear 04 Hours + pre & post shear VI	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear 08 Hours + pre & post shear VI	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear 20 Hours + pre & post shear VI	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear 30 Hours + pre & post shear VI	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear 40 Hours + pre & post shear VI	100 mL
● CEC L-45-99 Mod. & D2270	KRL Shear Custom Hours + pre & post shear VI	100 mL
CEC L-085-T99	Oxidation Induction Time by PDSC	5 mL
● CEC L-112	Elastomer Compatibility, RE6 FKM	500 mL
● CEC L-112	Elastomer Compatibility, RE7 ACM	500 mL
● CEC L-112	Elastomer Compatibility, RE8 HNBR	500 mL
● CEC L-112	Elastomer Compatibility, RE9 AEM	500 mL
EN 14078	FAME Fatty Acid Methyl Esters Content in Diesel Fuel Oil	100 mL
EN 14112	Oxidation Stability (Biodiesel & Petroleum Blends) Rancimat	100 mL
EN 15751	Oxidation Stability (Bio-based FAME Only) Rancimat	100 mL
EPA Test 24	Volatile Organic Content (VOC)	10 mL
FTM 203C	Stable Pour Point	200 mL



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Method	Test Description	Sample Size
FTM 3456	Channeling Characteristics	1 L
IP 346	PCA - Polycyclic Analysis	100 mL
ISO 4406	Particle Count	100 mL
SAVLAB APP	Appearance	50 mL
SAVLAB CAP	Cone & Plate Viscosity	10 mL
SAVLAB FEI	Fuel Efficiency Index (FEI)	300 mL
SAVLAB FGE	FoamGen Analysis (Custom Test)	1 L
SAVLAB GES	GE Locomotive Specification (GE Package 1, B82-1 test)	300 mL
● SAVLAB IR	Fourier Transform Infra-Red, FTIR, Spectra Only	50 mL
● SAVLAB IRG	Fourier Transform Infra-Red, FTIR, Glycol Analysis	50 mL
● SAVLAB IRW	Fourier Transform Infra-Red, FTIR, Water Analysis	50 mL
● SAVLAB LPYC	Density, Pycnometer	120 mL
SAVLAB MIC	Microscopy	10 mL
SAVLAB PEI	Phosphorus Emissions Index (PEI) at 250°C, 1 Hour	250 mL
SAVLAB PEI 165	Phosphorus Emissions Index (PEI) at 165°C, 16 Hours	250 mL
SAVLAB PEI 165	Phosphorus Emissions Index (PEI) at 165°C, 32 Hours	250 mL
SAVLAB PEI 165	Phosphorus Emissions Index (PEI) at 165°C, 48 Hours	250 mL
SAVLAB PEI 165	Phosphorus Emissions Index (PEI) at 165°C, 64 Hours	250 mL
SAVLAB PH	pH Determination	150 mL
SAVLAB RBP	Reflux Boiling Point	100 mL
SAVLAB SEI	Sulfur Emissions Index, (SEI)	250 mL
SAVLAB SFACALC	Sulfated Ash, Calculated from ICP Results	N/A
SAVLAB TBR	High Temperature Low Shear / TBR Viscosity, New Oil	150 mL
SAVLAB TBR	High Temperature Low Shear / TBR Viscosity, Other Shear	150 mL
SAVLAB TBR	High Temperature Low Shear / TBR Viscosity, Other Temperature	150 mL
SAVLAB TBR	High Temperature Low Shear / TBR Viscosity, Used Oil	150 mL
SAVLAB TGASCAN	TGA Thermal Scan or Isotherm	5 mL
SAVLAB VLP	Viscosity Loss Profile (VLP), 20 Passes	1 L
SAVLAB VLP	Viscosity Loss Profile (VLP), 30 Passes	1 L
SAVLAB VLP	Viscosity Loss Profile (VLP), 40 Passes	1 L
● SAVLAB XRFSKAN	Elemental Analysis, Qualitative by XRF	30 mL
● VDA 675301	GM Dexos 1:2015 Elastomer Compatibility, AEM, Ethylene Acrylate	1.2 L

