Grease Testing Services

Extend Your Lab Capabilities

At Savant Labs, we are uniquely qualified to equip your business with the grease testing capabilities and competitive advantages you need. Savant offers standardized and custom-designed lubrication specification testing for passenger cars, heavy-duty diesels, locomotive, turbine power generation, and many other grease applications.

We can help you with your pre- certification testing to meet the new High-Performance Multiuse (HPM) Grease Specification. We can customize test packages including SRV ® wear testing and more.

Method	Test Description
ASTM D94	Saponification Number
ASTM D217	Cone Penetration, Grease, Unworked
ASTM D217	Cone Penetration, Grease, Worked, 60 Strokes
ASTM D217	Cone Penetration, Grease, Worked, 10,000 Strokes
ASTM D217	Cone Penetration, Grease, Worked, 100,000 Strokes
ASTM D566	Dropping Point Grease
ASTM D942	Oxidation Stability (Grease) 100 Hours
ASTM D972	Evaporation Loss (Grease) - Specify Time and Temperature
ASTM D1092	Apparent Viscosity, Grease
ASTM D1264	Water Washout (Single Temperature)
ASTM D1264	Water Washout (Two Bearings Per Method/ Single Temperature)
ASTM D1403	Cone Penetration, 1/4 or 1/2 Scale
ASTM D1404	Harmful Particles in Grease
ASTM D1478	Low Temperature Torque - Grease
ASTM D1742	Oil Separation, Storage of Greases
ASTM D1743	Rust Prevention Properties of Grease
ASTM D1831	Roll Stability of Grease
ASTM D2265	Dropping Point
ASTM D2266	Four Ball Wear (Grease)
ASTM D2509	Timken OK Load for Grease (Specify starting load)
ASTM D2595	Evaporation Loss, Grease, Wide Temperature Range
ASTM D2596	Four Ball Extreme Pressure (Grease) Up to 400 kg.
ASTM D2596	Four Ball Extreme Pressure (Grease) Above 400 kg.
ASTM D2622	Sulfur by XRF - Wavelength Dispersive
ASTM D3336	High Temperature Bearing Performance Up to 600 Hours
ASTM D3527	High Temperature Life, Wheel Bearing Grease
ASTM D3704	Oscillation Friction Wear, Grease
ASTM D4048	Copper Strip Corrosion, Grease
ASTM D4049	Resistance of Lubricating Grease to Water Spray
ASTM D4170	Fretting Wear, Grease
ASTM D4289	Elastomer Compatibility NBR L and CR Grease
ASTM D4289	Elastomer Compatibility NBR L or CR Grease
ASTM D4290	Leakage of Wheel Bearing Grease
ASTM D4693	Low Temperature Torque, Grease
ASTM D5483	Oxidation Stability of Greases by PDSC
ASTM D5706	Extreme Pressure Properties Using SRV, Procedure A
ASTM D5706	Extreme Pressure Properties Using SRV, Procedure B
ASTM D5707	High Frequency, Linear Oscillation, SRV of Grease
ASTM D5969	Corrosion-Preventive, Dilute Synthetic Sea Water Environments
ASTM D6138	Corrosion-Preventive, Dynamic Wet Conditions (Emcor Test)
ASTM D6184	Oil Separation Percent, Wire Cone Method
ASTM D6186	Oxidation Induction Time by PDSC
ASTM D6304	Water by Karl Fischer
ASTM D6482	Cooling Curve Analysis of Aqueous Polymer Quenchants
ASTM D7420	Tribomechanical Properties of Grease Lubricated Plastic Socket Suspension Joints Using a High-Frequency, Linear-Oscillation SRV
ASTM D7594	Fretting Wear, High Hertzian, High-Frequency, Linear-Oscillation (SRV)
ASTM D8022	Roll Stability, Presence of Water
DIN 51805	Flow Pressure, Kesternich Method
FTM-321	Oil Separation, Wire Cone Method, Grease
FTM-3005	Dirt Count of Grease
ISO 14635-1	FZG Gear Test
SAVLAB IR	Fourier Transform Infra-Red, FTIR, Spectra Only
US Steel LT-37	Grease Mobility

(continued on page 2)

SAVANT LABS

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NLGI HIGH-PERFORMANCE (HPM) GREASE SPECIFICATION

	Property	Test Conditions	Test Method	Units	Min	Max
HPM Core Specification	Cone Penetration of Lubricating Grease	Worked 60 Strokes	ASTM D217	dmm	220	340
	Cone Penetration of Lubricating Grease	Prolonged worked penetration (Δ100k)	ASTM D217	dmm	-30	+30
	Elastomer Compatibility of Lubricating Greases and Fluids [using NBR standard reference elastomer per ISO 13226]	168 hours @ 125 °C	ASTM D4289	ΔHardness (Shore A points)	-15	+2
	Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method	Pressure drop after 100 hrs @ 100 °C	ASTM D942	kPa (psi)		35 (5.1)
	Determining the Water Washout Characteristics of Lubricating Greases	60 minutes @ 79 °C	ASTM D1264	wt%		10
	Low Temperature Torque of Ball Bearing Grease	-20 °C	ASTM D1478			
	Starting torque			mNm (g·cm)		1000 (10,200)
	Running torque @ 60 minutes			mNm (g·cm)		100 (1,020)
	Oil Separation from Lubricating Grease During Storage	24 hours @ 25 °C	ASTM D1742	wt%		5.0
	Oil Separation from Lubricating Grease (Conical Sieve Method)	30 hours @ 100 °C	ASTM D6184	wt%		7.0
	Roll Stability of Lubricating Grease [using 1/2 scale penetration]	2 hours @ RT	ASTM D1831	dmm	-10%	+10%
	Wear Preventive Characteristics of Lubricating Grease (Four-Ball Method) Wear Scar Diameter	75 °C, 1200 rpm, 60 minutes	ASTM D2266	mm		0.60
	Measurement of Extreme-Pressure Properties of Lubricating Grease (Four-Ball Method), Weld point	1770 rpm @ 27 °C	ASTM D2596	kgf	250	
	Determining Corrosion Preventive Properties of Lubricating Greases	48 hours @ 52 °C	ASTM D1743	rating	Pass	
	Determination of Corrosion-Preventive Properties of Lubricating Greases Under Dynamic Wet Conditions (Emcor Test)	Distilled Water, 2 bearings	ASTM D6138	rating		0,1
	Detection of Copper Corrosion from Lubricating Grease	24 hours @ 100 °C	ASTM D4048	rating		1B
HPM+ WR	Determining the Water Washout Characteristics of Lubricating Greases	60 minutes @ 79 °C	ASTMD1264	wt%		5.0
	Determining the Resistance of Lubricating Grease to Water Spray	5 minutes @ 38 °C	ASTM D4049	wt%		40
	Roll Stability of Lubricating Grease in Presence of Water, 10% by wt distilled water [using 1/2 scale penetration]	2 hours @ RT	ASTM D8022	dmm	-15%	+15%
HPM + CR	Corrosion-Preventive Properties of Lubricating Greases in Presence of Dilute Synthetic Sea Water Environments	10% Synthetic seawater (as in ASTM D665)	ASTM D5969	rating	Pass	
	Determination of Corrosion-Preventive Properties of Lubricating Greases Under Dynamic Wet Conditions (Emcor Test)	100% Synthetic seawater (as in ASTM D665)	ASTM D6138	rating		1 , 2
	Determination of Corrosion-Preventive Properties of Lubricating Greases Under Dynamic Wet Conditions (Emcor Test)	0.5 N solution (~3% NaCl solution)	ASTM D6138	rating		2 , 3
HPM + HL	Wear Preventive Characteristics of Lubricating Grease (Four-Ball Method) Wear Scar Diameter	75 °C, 1200 rpm, 60 minutes	ASTM D2266	mm		0.50
	Measurement of Extreme-Pressure Properties of Lubricating Grease (Four-Ball Method), Weld point	1770 rpm @ 27 °C	ASTM D2596	kgf	400	
	Determining Extreme Pressure Properties of Lubricating Greases Using a High-Frequency, Linear- Oscillation (SRV) Test Machine, Pass Load	(Procedure B at 80 °C)	ASTM D5706	N	800	
	Fretting Wear Protection by Lubricating Greases	Average of 2 runs, 22 hours @ RT	ASTM D4170	mg		5.0
	Determining Fretting Wear Resistance of Lubricating Greases Under High Hertzian Contact Pressures Using a High-Frequency, Linear- Oscillation (SRV) Test Machine	50 °C, 100N, 0.300mm, 4 hours	ASTM D7594	mm		0.500
HPM + LT	Low Temperature Torque of Ball Bearing Grease	-30 °C	ASTM D1478			
	Starting torque			mNm (g·cm)		1000 (10,200)
	Running torque @ 60 minutes			mNm (g·cm)		100 (1,020)
	Grease Mobility	-20 °C	US Steel LT-37	g/min	10	
	Determination of flow pressure of lubricating greases according to Kesternich method	-30 °C	DIN 51805	mbar		1400