



Renewable Lubricants, Inc.

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Bio-Synthetic HD SHP Motor Oil **SAE 20W50 (10 TBN)**

STABILIZED™
by Renewable Lubricants

"Biobased Lubricants that Perform Like Synthetics"

Advanced Heavy Duty for OEM Long Drain Performance

Bio-Synthetic Heavy Duty Super High Performance SAE 20W50 contains the most advanced chemical technology available for high performance, heavy-duty turbocharged and supercharged diesel and gasoline engines that require API Service SJ, SL, SM/CD, CDII, CE, CF, CF-2, CF-4, CG-4, CH-4, CI-4, CI-4 Plus, and ACEA E2-96, E5-02 Issue 2/B3-98/A3-98.

Renewable Lubricants, Inc. formulates this lubricant to exceed most API requirements. RLI's chemistry is blended into the highest quality biobased and synthetic base stocks and provides extended engine life relative to other conventional oils without this proven chemistry. This premium quality additive technology has documented records of **excellent field performance** in Caterpillar, Cummins, Detroit Diesel, Mack, Volvo, and Mercedes Benz in terms of:

- Superior wear protection in both conventional valve train and overhead cams
- Superior anti-rust protection and bearing corrosion protection
- Outstanding anti-oxidation properties
- High temperature thermal stability
- Superb protection from low temperature sludge and varnish formation
- Enhanced shear stability
- Power-shift transmission performance for Cat TO-2, Allison C-3/C-4
- **Reserve alkalinity (>10TBN) combats acidic fuel sulfur and nitrates to meet OEM extended drain requirements**

This biobased synthetic lubricant is formulated to exceed the Original Equipment Manufactures (OEM) requirements for new vehicles, but vehicles with higher mileage and equipment with high hours need a different lubricant that improves performance in these older out of warranty machines. As the engine wears the lubrication film needs to be improved and the additive technology should also be increased to prevent wear and condition the seals for longer life. Unlike conventional motor oils, this biobased, synthetic formula has special additives and additional booster additives that help improve engine life. This is noticeable by the deep and dark color of this formula.

Since 1993, RLI's unique, first of their kind, Bio-Super High Performance Motor Oils have proven exceptional performance in the racing world, and they are the lubricants of choice for top performing world and national champions. These high performance racing oils have exceeded the performance of conventional petroleum based products and have shown performance equal to and better than synthetic formulas. Excellent performance has also been experienced from the heavy loads (3000 HP @ >9000 RPM) of IHRA Seven Time World Champion alcohol fueled dragster to the high-temperature, long-term endurance, championship, road racing. These specially formulated racing oils have been designed and tested to run in extreme conditions that would be expected with the motor sport, high performance engines. This high performance technology is also the key additive technology in this Bio-Synthetic HD Motor Oil.

This Heavy Duty Lubricant is formulated using the most advanced and newest API SM/CI-4 approved additives. While no formal engine oil license performance is implied or guaranteed in this formulation, the key physical properties as defined by SAE J300 are met. This biobased formulation is inherently biodegradable and is designed to reduce emissions over conventional formulas. **(Tested by the USDA as Biobased)**

STABILIZED by Renewable Lubricants * is RLI's trademark on their proprietary and patented anti-oxidant, anti-wear, and cold flow technology. High Oleic Base Stock (HOBS) are agricultural vegetable oils. This Stabilized technology allows the HOBS to perform as a high performance formula in high and low temperature applications, reducing oil thickening and deposits.

US Patents: 5,736,493, 5,863,872, 5,990,055, 6,383,992, 6,534,454 and foreign PCT

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Availability F.O.B. :Hartville, Ohio, USA Quarts 1 Gallon 5 Gallon Pails Drums Bulk

Bio-Synthetic HD SHP Motor Oil SAE 20W50

TYPICAL SPECIFICATIONS	METHOD	<u>SAE 20W50</u>
TEST		
Specific Gravity @ 15.6°C	ASTM D-287	.89
Viscosity @ 100°C	ASTM D-445	18
Viscosity @ 40°C	ASTM D-445	126
Viscosity Index	ASTM D-2270	159
Flash Point (COC)	ASTM D-92	225°C
Pour Point	ASTM D-97	-30
CCS @ -15°C, cp	ASTM-D-5293	Max – 9500
MRV-TP1 @ -20°C, cP	ASTM-D-4684	26,000
Yield Stress, Pa		<35
HHS @ 150° C, Apparent Viscosity, cP	ASTM-D-4683	>3.7
NOACK Volatility % max 1h at 250°C	NOACK	10.5

Following are some of the organizations and companies who are using RLI's Bio-Engine Oils successfully:

USDA – Beltsville
 U.S. Coast Guard
 Pictured Rocks National Lakeshore
 Sleepy Hollow State Park
 Point Reyes National Seashore
 Wells State Park
 Cape Cod National Seashore
 Atkinson Contractors
 Mark Thomas Racing
 Volunteer Chevy
 NOAA and the Great Lakes Region
 Portage Area Regional Transit Authority (PARTA)