SINCE 1839
Schaeffer's
SPECIALIZED LUBRICANTS

TECHNICAL DATA

102 Barton Street, St. Louis MO 63104
Ph: 800-325-9962 / Fax: 314-865-4107
www.schaefferoil.com
ISO 9001 CERTIFIED

8012 ADVANCED EUROPEAN PERFORMANCE HEAVY DUTY DIESEL ENGINE OIL SAE 5W-30

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 is an Ultra High Performance (UHPD), low ash, heavy-duty diesel engine oil combines exceptional protection and durability for modern low emission engines with exceptional fuel economy, green-house gas emission reduction, emissions system protection and extended drain capability. Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 is designed for use in a wide array of diesel powered commercial vehicles. It is particularly suitable for use in EPA, Euro V and Euro VI low emission compliant engines that utilize Exhaust Gas Recirculation (EGR) and exhaust after-treatment devices such as diesel particulate filters (DPFs) with or without diesel oxidation catalysts (DOCs) and Selective Catalytic Reduction (SCR). Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 can also be used in both on-highway and off-highway diesel powered engines that are used in industries such as transportation, mining, construction and agriculture. Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 offers up to a 3.3% improvement in fuel economy in US Class 6 to 8 and a 1.3% fuel economy improvement in European long haul operations when compared to SAE 15W-40 engine oil.

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 can be used in vocational and light duty mixed fleet applications where a mix of diesel and gasoline engine applications occurs.

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 is blended from a unique combination of select synthetic base fluids to provide the following benefits:

- Superior cold cranking and oil pumpability at low temperatures.
- Exceptional oxidative and thermal stability especially at high engine operating temperatures.
- Exceptional low volatility characteristics to control oil consumption.
- A high viscosity index.
- Improved fuel economy benefits with extended oil drain capability and intervals.

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 contains a highly balanced proprietary heavy-duty diesel additive technology and a highly shear stable viscosity index improver which provides these ground breaking performance benefits in the following areas:

- Excellent wear and deposit control protection with superior thermal and oxidative stability.
- A patented novel zinc anti-wear additive system to minimize volatility and chemical breakdown and provide maximum, long lasting anti-wear performance and exhaust after-treatment protection.
- Superior soot busting capabilities to prevent soot build-up and agglomeration.
- Exceptional thermal stability, for outstanding performance at high engine operating temperatures.
- Excellent TBN retention and reserve, coupled with excellent TAN suppression control for effective acid neutralization throughout the entire oil drain interval.
- Excellent protection against acidic corrosion of vital components.
- Excellent soot dispersancy for protection against soot overloading, viscosity increase due to soot thickening and soot abrasive wear.
- Enhanced detergency for high temperature piston cleanliness, protection against bore polishing and scuffing and increased engine cleanliness.
- Excellent protection against low temperature sludge build-up and high temperature deposits.
- Reduced high temperature carbon build-up – both in single and two-piece pistons.
- Exceptional ring and liner wear protection to improve oil consumption control.

- Excellent shear stability for stay-in-grade performance throughout the oil drain interval.
- Excellent cold weather start-ability and pumpability for better cold temperature starts.
- Excellent anti-foaming properties to protect against aeration and foaming.
- Superior low volatility characteristics to control oil consumption.
- Longer filter life especially at high soot levels for better engine protection.
- Excellent high temperature/high shear performance to provide excellent oil film thickness and engine protection at high operating temperatures and shear rates.
- Exceptional valve-train wear protection especially during high soot conditions.
- Excellent resistance to corrosion and corrosive and abrasive wear
- Excellent gasket and seal life.
- Prolonged after-treatment (DPF and DOC) life.
- Improved fuel economy and longer drain intervals for lower overall maintenance costs.
- Increased engine life especially for older model engines and reduced maintenance costs due to downtime.
- Improved engine durability and reliability.

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 also contains two proven frictional modifiers, Micron Moly®, a liquid soluble type of Moly and Schaeffer Mfg.'s own proprietary additive Penetro® . These two proven frictional modifiers, once plated, form a long lasting, slippery and tenacious lubricant film, which prevents the metal surfaces from coming into contact with each other. By preventing metal-to-metal contact, damaging frictional wear is prevented from occurring. This prevention of metal-to-metal contact and reduction in wear results in:

- Increased Fuel Economy.
- A Low Coefficient of Friction.
- Significantly Less Bearing, Ring, Piston, Cylinder and Valve-Train Wear.
- Increased Engine Efficiency, Durability, and Life
- Less Downtime with Reduced Maintenance

Advanced European Performance Heavy Duty Diesel Engine Oil SAE 5W-30 meets and exceeds the following manufacturers' specifications and requirements: API CJ-4/SN; ACEA E6-16; ACEA E7-16; ACEA E9-16; Mercedes-Benz MB 228.31, MB 228.51; MAN 3271-1, MAN 3477; MAN 3677; MTU Type 2.1; Renault Truck RXD; Renault Truck RGD; Renault Truck RLD/RLD-2, Renault Truck RLD-3; Deutz DQC IV-10LA; JASO DH-2; Cat ECF-3; Cummins CES 20081; Detroit Diesel DDC Power Guard 93K218; Mack EO-O Premium Plus-07; Scania Low Ash; Volvo VDS-4; Volvo CNG

Typical properties on next page

TYPICAL PROPERTIES

SAE Grade	**5W-30**
Specific Gravity @ 60°F (15.6°C)	0.854
Pounds Per U.S. Gal @ 60°F (15.6°C)	7.11
Viscosity @ 40°C, cSt ASTM D445	70
Viscosity @ 100°C, cSt ASTM D445	11.5-12.4
CCS Viscosity, cP @ -30°C ASTM D5293	6,090
Mini Rotary Viscosity TP-1, cP @ -35°C	16,300
High Temperature High Shear Viscosity, cP @ 302°F (150°C)	3.5
Viscosity Index ASTM D2270	165
Flash Point °F (°C) ASTM D92	439° (226°)
Pour Point °F (°C) ASTM D97	-44° (-42°)
Sulfated Ash Content % Wt. (ASTM D874)	0.99%
Total Base Number (ASTM D2896)	10
Total Acid Number (ASTM D664)	2.20
NOACK Volatility (ASTM D5800)	
% Evaporative Loss	11.5%
Shear Stability % Viscosity Loss @ 90 Passes ASTM D7109	3.5%
Foam Test Option A ASTM D892	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
High Temperature Foam Test (ASTM D6082 Option A)	10/0
Sequence IIIG % viscosity increase @ 40°C EOT	103.5%
MHT-4 TEOST ASTM D7097	
Deposit wt., mg	9.9
High Temperature Corrosion Bench Test ASTM D6594	
Copper, ppm	14
Lead, ppm	61
Tin, ppm	0
Copper Strip Rating	1B
Zinc, ppm (ICP)	740 to 900
Phosphorous, ppm	800
Sulfur % wt.	0.27