



Heavy Duty Synthetic Blend Engine Oils

STARFIRE HD Synthetic Blend Engine Oils are specially engineered for heavy duty diesel and gasoline engines operating under all service conditions, including today's emission controlled engines with EGR and Diesel particulate filters using Ultra-Low Sulfur Diesel Fuel (ULSD) and Low Sulfur Diesel (LSD). They provide excellent oxidation control and high detergency and dispersancy keeps engines and pistons clean and soot suspended in oil despite longer drain intervals and increased soot loading.

STARFIRE HD Synthetic Blend Engine Oil meet or exceed performance requirements for all automotive engines currently in use where a SAE 15W-40 that meets API CK-4/SN is specified.

Recommendations

- Mack EO-0 Premium Plus 07
- Volvo VDS-4
- DDC Power Guard
- GLOBAL DHD-1
- Detroit Diesel 93K222, 93K218
- Cummins CES 20086, 20081, 20077,20076
- Renault RLD-3
- Caterpillar ECF-1a, ECF-2, ECF-3
- Mack EOS-4.5, EO-N Premium Plus 03, Mack EO-N Premium Plus, EO-M Plus, EO-M
- Mercedes Benz 228.3
- Man 3575, 3275, DDC/MTU Series 2000/4000 category 1 and 2 engine performance
- Volvo VDS-4.5, VDS-4, VDS-3, DHD-1
- ACEA E9-08, E7-04, E5 and E3
- JASO DH-2
- Allison C-4
- Caterpillar TO-2
- Ford WSS-M2C171-F1
- MTU 2.1, Type I, Type II

PRODUCT DATA	TEST METHOD	TYPICAL	TYPICAL
		15W40	10W30
Viscosity: cSt @ 40°C cSt @ 100°C	D445	115 15.5	8206 1221
Viscosity Index	D2270	142	145
Pour Point, °C (°F)	D97	-40 (-40)	-39°C (-38°F)
Flash Point °C (°F)	D92	238 (460)	238 (460)
Neutralization No., TBN-E	D2896	10	10
Sulfated Ash, wt.%	D874	1.0	0.99
Cold Crank Simulator, cP	D5293	6210/-20°C	6270 (-25)
Mini-Rotary Viscometer TP1, cP	D4684	19700/-25°C	23,000 (-30)
HTHS @ 150°C, cP	D4683	4.2	3.5