

4100 CNG ENGINE OIL SYNTHETIC PLUS SAE 15W-40

CNG Engine Oil Synthetic Plus is a superior low ash, catalyst compatible, para-synthetic dedicated mobile natural gas engine oil that is formulated for use in stoichiometric and lean burning CNG (Compressed Natural Gas), LNG (Liquefied Natural Gas) or LPG (Liquefied Petroleum Gas) vehicles such as transit buses, school buses, refuse trucks, airport and intercity shuttles and delivery fleets. CNG Engine Oil Synthetic Plus is particularly recommended for use in those vehicles equipped with Cummins, Detroit Diesel, John Deere and Volvo CNG or LNG engines. CNG Engine Oil Synthetic Plus meets the requirements of Cummins CES 20092 specification.

CNG Engine Oil Synthetic Plus is blended from a unique blend of select synthetic base fluids and severely hydro-treated and hydrocracked Group II Plus available which provide the following advantages:

- Superior cold weather start-ability and pumpability
- Excellent resistance to thermal and oxidative breakdown
- Excellent low volatility characteristics that provide exceptional oil consumption control and the prevention of the formation of deposits on critical engine parts
- A naturally high viscosity index

CNG Engine Oil Synthetic Plus contains carefully balanced, dedicated low-ash performance mobile natural gas additive system along with a highly shear stable viscosity index improver that exceeds the requirements for Cummins' CES20092 Natural Gas Engine Oil Specification and provides the following performance benefits:

- Superior protection against oxidation and nitration.
- An optimized balance of detergent, dispersants and anti-oxidants that provides superior deposit control to prevent the formation of deposits on the piston crown, combustion chamber, cylinder valves and cylinder walls due the higher combustion chamber and operating temperatures experienced in CNG engines.
- Excellent overall engine cleanliness
- Excellent protection against valve stem deposits and valve seat recession
- Prolonged valve and spark plug life
- A superior and long-lasting antioxidant system to prevent oxidation of the oil throughout its entire oil drain interval
- A higher level of anti-wear additives than conventional low-ash gas engine oils to meet the demanding requirements of on-highway applications
- Excellent wear protection for slider-follower diesel engines converted to CNG and LNG service
- Extended oil filter life
- Excellent TBN retention and reserve for optimum protection
- Reduced bearing corrosion
- Excellent rust and corrosion protection
- Excellent thermal and oxidative stability and anti-coking protection
- Excellent oil consumption control
- Superior low volatility characteristics
- Excellent high temperature/high shear performance in order to provide excellent oil film thickness at high operating temperatures and shear rates, while minimizing lubricant frictional resistance
- Excellent shear stability for stay-in-grade performance throughout the entire oil drain interval
- Rapid circulation and good pumpability at low temperature

- Excellent anti-foaming properties
- Very good catalyst compatibility
- Excellent minimization of the formation of hot spots that can lead to increased NO_x formation and catalyst poisoning
- Increased engine durability and reliability
- Enhanced oil life for extendable oil drain intervals
- Increased engine life and reduced maintenance costs due to down-time

Further blended into CNG Engine Oil Synthetic Plus are two proven frictional modifiers, Micron Moly®, a liquid soluble type of moly, and Schaeffer Mfg.'s own proprietary additive Penetro®. Once plated, these frictional modifiers form a long lasting, slippery, tenacious lubricant film, which prevents metal-to-metal contact and damaging frictional wear which results in:

- Increased fuel economy
- A low coefficient of friction
- Significantly less bearing, ring, piston, cylinder and valve-train wear
- Increased engine efficiency, life, and durability
- Less downtime with reduced maintenance

CNG Engine Oil Synthetic Plus meets and exceeds the performance requirements for Cummins CES 20092; Detroit Diesel 93K216; Volvo CNG, Renault RGD; Mercedes Benz MB 226.9; Isuzu CNG; Hino CNG; Hyundai CNG; John Deere CNG/LNG and LPG fueled engines and API CF-4.

CNG Engine Oil Synthetic Plus can also be used in those applications that specify the use of an engine that meets the Cummins CES 20085 specification and in Cummins B6.7N CM2380 B118, ISB6.7 GCM2180 B116; ISL G CM2180; ISX 12g CM2180EJ; ISX 12N CM2380X120B AND L9N CM2380 L124B engines that specify the use of engine oils that meet the Cummins CES 20074 specification.

TYPICAL PROPERTIES

SAE Grade	15W-40
Specific Gravity 60°F/15°C	0.86
Viscosity @ 40°C (ASTM D445), cSt	95.17
Viscosity @ 100°C (ASTM D445), cSt	13.76
High Temperature High Shear Viscosity 302F°/150°C cP (ASTM D4683)	3.7
Cold Cranking Viscosity -20°C (ASTM D5293), cP	3,788
Mini-Rotary Viscosity @-25°C TP-1 (ASTM D4684), cP	17,900
Viscosity Index (ASTM D2270)	147
Flash Point (ASTM D92), °F/°C	440°/227°
Stable Pour Point (FTM 7916 Method 203), °F/°C	<-41°/<-42°
Sulfated Ash Content %wt. (ASTM D874)	0.87%
Total Base Number (ASTM D2896)	6.8
Total Acid Number (ASTM D664)	2-3
Foam Inhibition Test (ASTM D892)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
NOACK Volatility (ASTM D5800)	
% Evaporation Loss @ 250°C	9.6%
Calcium % wt.	0.1139-.1456
Phosphorous % wt.	0.0684-0.0874
Magnesium % weight	0.061 – 0.078