



TECHNICAL DATA

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#114CNG SYNTHETIC PLUS CNG ENGINE OIL SAE 15W-40

Synthetic Plus CNG Engine Oil SAE 15W-40 is a superior low ash, catalyst compatible, para-synthetic engine oil that is formulated for use in 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 or in those vehicular natural gas engines that have slider-follower valve trains. Synthetic Plus Natural Gas Engine Oil is particularly recommended for use in those vehicles equipped with Cummins, Detroit Diesel and John Deere CNG or LNG engines.

Synthetic Plus CNG Engine Oil SAE 15W-40 is blended from a unique combination of the finest quality severely hydrotreated polyalphaolefin (PAO) synthetic base fluids and severely hydrotreated and hydrocracked Group II Plus available. This unique combination provides Synthetic Plus CNG Engine Oil SAE 15W-40 with the following advantages:

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

Blended into the PAO synthetic base fluids and 100% paraffin base oils is a carefully balanced proprietary low-ash performance additive system and a highly shear stable viscosity index improver. This combination provides the Synthetic Plus CNG Engine Oil SAE 15W-40 with the following performance benefits:

1. A higher level of anti-wear additives than conventional low-ash gas engine oils to meet the demanding requirements of on-highway applications
2. Excellent wear protection for slider-follower diesel engines converted to CNG and LNG service
3. An optimized balance of detergency and dispersancy to provide excellent piston and engine cleanliness
4. Excellent protection against deposit formation on the piston crown, combustion chamber and cylinder walls
5. Excellent protection against valve stem deposits and valve seat recession

Continued On Next Page

TD-114CNG (05/2012)

6. Prolonged valve and spark plug life
7. Extended oil filter life
8. Exceptional nitration and oxidation control
9. Excellent overall engine cleanliness
10. Excellent TBN retention
11. Reduced bearing corrosion
12. Excellent rust and corrosion protection
13. Excellent thermal and oxidative stability and anti-coking protection
14. Excellent oil consumption control
15. Superior low volatility characteristics
16. 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
17. Excellent shear stability for stay-in-grade performance throughout the entire oil drain interval
18. Rapid circulation and good pumpability at low temperatures
19. Excellent anti-foaming properties
20. Very good catalyst compatibility
21. Excellent minimization of the formation of hot spots that can lead to increased NO_x formation and catalyst poisoning
22. Increased engine durability and reliability
23. Longer oil life
24. Increased engine life and reduced maintenance costs due to down-time

Further blended into these synthetic blend base fluids, the carefully balanced proprietary low-ash performance additive system and the shear stability viscosity index improver are 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, the Moly forms a long lasting slippery 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.
- * Increased Engine Durability.
- * Increased Engine Life.
- * Less Downtime.
- * Reduced Maintenance

Synthetic Plus CNG Engine Oil SAE 15W-40 meets and exceeds the performance requirements of API Service Category CF and the performance requirements for Cummins CES 200074 and Detroit Diesel 93K216. The product is recommended for Cummins L-10, "B" and "C" series stationary and vehicular CNG engines and Detroit Diesel 50G and 60G natural gas engines. Synthetic Plus Natural Gas Engine Oil SAE 15W-40 is also recommended and suitable for use in Mack CNG, Volvo CNG, Renault RGD, Isuzu CNG, Hino CNG, Hyundai CNG, John Deere CNG/LNG and LPG fueled engines and in earlier model 4 stroke diesel fueled engines calling for API CF-4/CG-4/CE/CD quality engine oils as well as out of warranty 2-stroke Detroit Diesel engines that specify the use of an API CF-2 quality engine oil. Always consult the owner's manual and the OEM's recommendations for the correct engine oil recommendations.

TYPICAL PROPERTIES

SAE Grade	15W-40
Specific Gravity 60°F/15°C	0.87
Viscosity @ 40°C, cSt (ASTM D-445)	90-110
Viscosity @ 100°C, cSt (ASTM D-445)	13.50 – 15.00
High Temperature High Shear Viscosity 302F°/150°C cP (ASTM D-4683)	3.8
Cold Cranking Viscosity cP @-20°C (ASTM D-5293)	4,300
Mini-Rotary Viscosity cP @-25°C TP-1 (ASTM D-4684)	16,500
Viscosity Index ASTM D-2270	140
Flash Point °F/°C ASTM D-92	448°/231°
Stable Pour Point °F/°C (FTM 7916 Method 203)	<-41°/<-42°
Sulfated Ash Content %wt. (ASTM D-874)	0.6%
Total Base Number (ASTM D-2896)	5.1
Total Acid Number (ASTM D-664)	2-3
Foam Inhibition Test (ASTM D-892)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
NOACK Volatility (ASTM D-5800)	
% Evaporation Loss @ 250°C	7.2%
Shear Stability % Viscosity Loss 90 Passes (ASTM D-7901)	10%
Calcium % wt.	0.12 – 0.15
Phosphorous % wt.	0.04 – 0.081
Zinc % wt.	0.07-0.09