SINCE 1839 Schaeffer MANUFACTURING COMPANY

ISO 9002 CERTIFIED

TECHNICAL DATA

102 Barton Street, St. Louis, Missouri 63104
In-State (314) 865-4100/Out of State 800-325-9962/Fax (314) 865-4107 http://www.schaefferoil.com

#700 SUPREME 7000 SAE 15W-40

CI-4/CH-4/SL

CI-4 PLUS

Supreme 7000 SAE 15W-40 is a synthetic blend premium quality multi-grade heavy-duty engine oil that is specially formulated to extend engine life, while providing for extended drain capability and improved fuel economy benefits. Supreme 7000 is recommended for use in all types of on-highway and off-highway diesel engines, including low-emissions certified engines, diesel engines that are equipped with Exhaust Gas Recirculation (EGR) Systems and in older on-highway and off-highway diesel engines.

Supreme 7000 SAE 15W-40 is blended from the finest quality solvent refined, severely hydrofinished 100% paraffin base oils and severely hydrofinished polyalphaolefin (PAO) synthetic base fluids available. This unique combination provides the Supreme 7000 SAE 15W-40 with the following advantages:

1. **Superior Cold Cranking and Oil Pumpability at Low Temperatures.**
2. **Superior Oxidative Stability Especially at High Engine Operating Temperatures.**
3. **Excellent Resistance to Thermal Degradation.**
4. **Excellent Low Volatility Characteristics That Provides Exceptional Oil Consumption Control and Prevention of the Formation of Deposits on Critical Engine Parts.**
5. **A High Viscosity Index.**
6. **Extended Oil Drain Capability and Intervals.**

Today's low emission diesel engines generate higher amounts of soot and operate at higher operating temperatures than older diesel engines. In addition current tighter engine designs reduce oil consumption, resulting in less fresh oil make-up to replenish additives. The top piston rings are located higher bringing the oil film closer to the combustion chamber, thus exposing the engine oil to severe thermal stresses. All of these factors require the need for the engine oil to contain an advanced additive system that will enhance the engine oil's ability to protect against soot overloading, high temperature deposit formation, while providing TBN retention and extended drain capabilities.

Continued on Next Page

Blended into the Supreme 7000's synthetic blend base stocks is a highly advanced proprietary performance additive package consisting of all calcium based metallic detergents, ashless dispersants, multi-purpose inhibitors and a highly shear stable viscosity index improver. This combination provides Supreme 7000 SAE 15W-40 with the following performance benefits:

1. **Excellent Wear Protection of On-Highway and Off-Highway Low Emission Diesel Engines and Pre-1994 Diesel Engines.**
2. **Excellent Deposit Protection of On-Highway and Off-Highway Low Emission Diesel Engines and Pre-1994 Diesel Engines**.
3. **Excellent Wear and Deposit Protection of Off-Highway Diesel Engines that Burn High Sulfur Diesel Fuel.**
4. **Exceptional Thermal Stability, for Outstanding Performance at High Engine Operating Temperatures.**
5. **Excellent TBN Retention, for Effective Acid Neutralization Throughout the Entire Oil Drain Interval.**
6. **High Levels of TBN Reserve for extended Drain Oil Capability.**
7. **Excellent Soot Dispercency for Protection Against Soot Overloading, Increases in Viscosity Due to Soot Thickening and Soot Abrasive Wear.**
8. **All Calcium Based Detergency to Enhance High Temperature Piston Cleanliness and Protection Against Bore Polishing and Scuffing.**
9. **Increased Engine Cleanliness.**
10. **Excellent Protection against Low Temperature Sludge Build-Up and High Temperature Deposits.**
11. **Reduced High Temperature Carbon Build-Up – Both in Single and Two-Piece Pistons.**
12. **Excellent Ring and Liner Wear Protection That Results in Improved Oil Consumption Control.**
13. **Excellent Shear Stability for Stay-In-Grade Performance throughout the Entire Oil Drain Interval.**
14. **Excellent Cold Weather Startability and Pumpability for Better Cold Temperature Starts.**
15. **Excellent Anti-Foaming Properties to Protect Against Aeration and Foaming.**
16. **Superior Low Volatility Characteristics to Control Oil Consumption.**
17. **Longer Filter Life Especially at High Soot Levels for Better Engine Protection.**
18. **Excellent High Temperature/High Shear Performance to Provide Excellent Oil Film Thickness and Engine Protection at High Operating Temperatures and Shear Rates.**
19. **Superior Valve-Train Wear Protection Especially During High Soot Conditions.**

Continued on Next Page

20. **A Substantial Reduction in Ring Sticking and Breaking.**
21. **Excellent Protection against Soot Overloading.**
22. **Superior Soot Handling Control.**
23. **Excellent Low Temperature Pumpability Protection**
24. **Reduced Bearing Wear and Increased Bearing Life.**
25. **Exceptional Wear Protection to Critical Wear Surfaces.**
26. **Excellent Resistance to Corrosion.**
27. **Excellent Gasket and Seal Life.**
28. **Excellent Component Compatibility.**
29. **Improved Fuel Economy.**
30. **Longer Drain Intervals, for Lower Overall Maintenance Costs.**
31. **Increased Engine Life for and Reduced Maintenance Costs Due to Downtime.**
32. **Improved Engine Durability to Keep Equipment in as New Condition.**
33. **Exceptional Value by Providing a Contribution to Reducing the Total Cost of Operation.**

Further blended into these synthetic blend base fluids, the highly advanced proprietary performance additive package and 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 down-time**
*** Reduced maintenance costs**

Supreme 7000 SAE 15W-40 meets and exceeds the following manufacturers' specifications and requirements: Military Specifications MIL-PRE-2104G and A-A-52306A, API Service Classification CI-4 Plus and CI-4/CH-4/SL, Global Specification DHD-1, JASO DH-1, Mack EO-N Premium Plus-03, Caterpillar, Caterpillar ECF-1, Caterpillar TO-2, Cummins CES 20076, CES 20077,

Continued on Next Page

CES 20078; Detroit Diesel 7SE 270, Detroit Diesel Power Guard Oil Specification 93K214, Detroit Diesel 2000/Series 4000 Category 1, Ford WSS-2C-171D International Harvester, Navistar, John Deere, JI Case, Komatsu Dresser, ACEA E5/E3/B3/A3, ACEA E-7-04; Duetz, Daimler Chrysler MB228.1/228.3, Daimler Chrysler MB 229.2, Daimler Chrysler MB228.5, Volvo VDS-2 and VDS-3, MAN 271, MAN 3275, MTU Type 2 and Volkswagen VW502.00, and VW505.00

TYPICAL PROPERTIES

SAE Grade	15W-40
Viscosity 40°C Cst (ASTM D-445)	110-126
Viscosity 100°C Cst (ASTM D-445)	14.00-16.00
CCS Viscosity @ -20°C cP (ASTM D-5293)	5,460
High Temperature High Shear Viscosity 302°F/150°C cP	4.3
Mini-rotary Viscosity-TP.1 @-25°C cP (ASTM D-4684)	17,500
Viscosity Index (ASTM D-2270)	145
Flash Point °F/°C (ASTM D-92)	457°/236.11°
Fire Point °F/°C (ASTM D-92)	495°/257.22°
Stable Pour Point °F/°C (FTM 7916 Method 203)	<-41°/<-42°
Sulfated Ash Content % Wt. (ASTM D-874)	1.5
Total Base Number (ASTM D-2896)	12
Volatility % Evaporative Loss @ 700°F (ASTM D-2287)	6%
NOACK Volatility (ASTM D-5800)	
% Evaporation Loss @ 250°C	11.03%
Shear Stability % Viscosity Loss – 90 Passes (ASTM D-6278)	9.9%
Foam Test (ASTM D-892 Option A)	
Sequence I	0/0
Sequence II	0/0
Sequence III	0/0
High Temperature Foam Test (ASTM D6082 Option A)	0/0
Cummins Bench Corrosion Test	
Copper increase, ppm	8
Lead increase, ppm	57
Tin increase, ppm	<0
Copper Strip Corrosion (ASTM D-130)	1a
MHT-4 TEOST (ASTM 6335) Deposit Weight, mg	27.1
Engine Rusting Ball and Rust Test (ASTM D-6557) Average Gray Value	133
Sequence IIIF % Viscosity Increase @ 40°C	35%

Packaging: #700 Supreme 7000 SAE 15W-40 is available in 55-gallon drums, 30 gallon drums and cases (12qt / case and 6X1gallon).