



TECHNICAL DATA

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#114S SYNTHETIC PLUS NATURAL GAS ENGINE OIL SAE 30 & 40

Synthetic Plus Natural Gas Engine Oil is a superior low ash para-synthetic natural gas engine oil that is specially formulated for use in stationary 2-cycle and 4-cycle stoichiometric and lean burning natural gas engines.

Synthetic Plus Natural Gas Engine Oil SAE 30 & 40 is blended from the finest severely hydrotreated polyalphaolefin (PAO) synthetic base fluids and high viscosity index solvent refined severely hydro-finished 100% paraffin base stocks and available. This unique combination provides Synthetic Plus Natural Gas Engine Oil with the following advantages.

- **Superior Cold Weather Startability and Operating Characteristics.** This results in less friction and lubricant drag in the engine during cold weather start up.
- **Superior Oxidative Stability.** Any oil, as it is increasingly exposed to high temperature operation, undergoes the process of oxidation; thus resulting in the oil's thickening and buildup of acidic components. Prevention of oil oxidation is particularly important for today's hotter running, low emissions engines. Because of the PAO's and 100% paraffin base oil's uniform and closed molecular structure, the process of oxidation is greatly reduced.
- **Excellent Resistance to Thermal Degradation.**
- **Lower Volatility.** This results in reduced oil consumption.
- **A High Natural Viscosity Index.**
- **Extended Oil Drain Capability and Intervals.**

Blended into the PAO synthetic base fluids and 100% paraffin base oils is a highly specialized performance additive package, that contain the proper balance of detergent, dispersant, rust and oxidation inhibitors and inhibitors and anti-wear additives to provide the following performance advantages:

1. Excellent piston groove, land and skirt cleanliness.
2. Elimination of piston skirt varnish.
3. Improved oxidation and nitration stability.
4. A vast reduction in piston ring sticking.
5. A reduction and modification of carbon deposits on piston crown, combustion chamber walls, spark plugs, cylinder walls, etc.
6. Reduced piston, ring cylinder wall and bearing wear.
7. Reduced bearing corrosion.
8. Extended oil filter life.
9. Longer spark plug life.
10. Minimized combustion chamber ash accumulation and plug fouling.
11. Catalytic convertor compatibility.
12. Longer oil drain capability.

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13. Increased engine durability and reliability.
14. Excellent TBN retention. This allows for its use in gas engines having alternate energy for fuel gas containing up to 0.3% sulfur as hydrogen sulfide and small amounts of total organic halide, such as chloride.
15. Superior valve train-wear protection.
16. Excellent high temperature/high shear performance in order to provide excellent oil film thickness and engine protection at high operating temperatures and shear rates, while minimizing lubricant frictional resistance.
17. Excellent thermal and oxidative stability and anti-coking protection.
18. Superior low volatility characteristics.
19. Rapid circulation and good pumpability at low temperatures.
20. Excellent anti-foaming properties.
21. Increased engine life and reduced maintenance costs due to downtime.

Further blended into these para-synthetic base fluids, the highly advanced proprietary low ash performance additive package 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, form 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 Natural Engine Oil meets and exceeds the following manufacturer's requirements: Caterpillar, Cooper-Bessmer, Copper-Enterprise, DeLaval, Dresser-Clark, Dresser-Rand, Superior and Waukesha

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TYPICAL PROPERTIES

SAE Grade	30	40
ISO Grade	100	150
API Gravity 60°F/15°C	30.75	30.1
Specific Gravity 60°F/15°C	.8721	.8756
Viscosity 40°C Cst (ASTM D-445)	92-100	138.94-140.6
Viscosity 100°C Cst (ASTM D-445)	11.02-11.68	14.59-14.88
High Temperature/High Shear Viscosity, cP (ASTM D-4683)	3.5	3.8
Viscosity Index (ASTM D-2270)	105	100
Flash Point °F/°C (ASTM D-92)	476°/247°	500°/260°
Fire Point °F/°C (ASTM D-92)	515°/268°	530°/276.67°
Pour Point °F/°C (ASTM D-97)	-10°/-23.33°	-5°/-20.56°
Sulfated Ash Content % wt (ASTM D-874)	0.4%	0.4%
Total Base Number (ASTM D-2896)	5.1	5.1
Total Acid Number (ASTM D-664)	2-3	2-3
Foam Test (ASTM D-892)		
Sequence I	0/0	0/0
Sequence II	0/0	0/0
Sequence III	0/0	0/0
Sequence IV	0/0	0/0
Thin Film Oxidation Loss Uptake Test (ASTM D-4742)		
Induction Time, minutes	200+	200+
Volatility % Loss @ 700°F (ASTM D-2281)	5.0%	5.0%
Calcium % wt	.104-.118	.104-.118
Phosphorous % wt	.024-.031	.024-.031
Zinc % wt	.028-.04	.028-.04
Nitrogen % wt	.081-.098	.081-.098