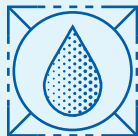




CITGO® Pacemaker® Gas Engine Oil 1600 Series

OVERVIEW



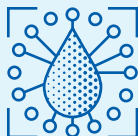
- Superior low ash, low phosphorus stationary natural gas engine oils with a balanced advanced additive package for unsurpassed performance.
- New-generation oils deliver a superior level of cleanliness with excellent wear protection and a low ash formula that complies with manufacturers' warranties and non-selective catalytic converter requirements.

FEATURES & BENEFITS



- Formulated with the latest generation of additives and the highest-quality base stocks available.
- Contain special dispersants and detergents to help ensure a cleaner, longer-running engine.
- Control deposits and minimize wear of pistons, rings, and liners.
- Retain TBN to neutralize combustion acids from sour gas.
- Effectively control oxidation and nitration, which cause sludge that thickens the oil, plugs filters, and causes excessive foaming.
- Minimize valve recession to provide longer head life.

APPLICATIONS



- Suitable for a wide range of engines operating on virtually any variation of natural or synthetic gas, gas from digester or landfill sources, or fuels containing low levels of sulfur and chlorofluorocarbons (CFC). Note: In high-CFC/sour gas applications, an oil with a higher base reserve may be required.
- Recommended for high- and medium-speed 4-cycle engines manufactured by Caterpillar, Waukesha, Superior, Cooper-Bessemer, Cummins, Dresser-Rand (Categories I, II and III), and low-speed engines manufactured by Cooper-Bessemer and Worthington C4-Cycle.
- CITGO Pacemaker Gas Engine Oil 1640 is a specially formulated SAE 40 grade product that exhibits superior low temperature properties, compared with other monograde oils. It is particularly well suited for applications where improved low temperature fluidity is needed, but a monograde oil is recommended by the engine manufacturer.

PROPERTIES



Typical Properties for CITGO Pacemaker Gas Engine Oil 1600 Series:

Product Name	1615	1630	1640
SAE Grade	15W-40	30	40
Material Code	632047001	632045001	632046001
Gravity, ASTM D4052, °API	30.6	29.7	28.7
Pounds Per Gallon	7.27	7.31	7.35
Flash Point, COC, ASTM D92, °F (°C)	446 (230)	446 (241)	511 (266)
Viscosity ASTM D445			
cSt at 40°C	96.7	89.2	125.1
cSt at 100°C	13.6	10.9	13.3
Viscosity Index, ASTM D2270	141	107	101
Pour Point, ASTM D97, °F (°C)	-27 (-33)	-27 (-33)	-33 (-36)
Color, ASTM D1500	L5.0	L4.5	L4.5
Carbon Residue, % (base stock)	0.02	0.02	0.02
Sulfated Ash, ASTM D874, m%	0.5	0.5	0.5
Total Acid No., ASTM D664, mg KOH/g	0.60	0.63	0.52
Total Base No., ASTM D2896, mg KOH/g	4.0	4.0	4.0
Phosphorus, ppm	280	280	280

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