

CITGO PACEMAKER® GAS ENGINE OIL
1600 SERIES

Date 09/13

DESCRIPTION: CITGO Pacemaker Gas Engine Oil 1600 Series oils are superior low ash, low phosphorus gas engine oils with a balanced advanced additive package to meet API CD quality performance and non-selective catalytic converter requirements. These new generation oils deliver a superior level of cleanliness—with excellent wear protection with a low ash formula that complies with manufacturers' warranties.

Formulated with the latest generation additives and highest quality base stocks available, CITGO Pacemaker Gas Engine Oil 1600 Series oils are unsurpassed in performance.

- QUALITIES:**
- Contain special dispersants and detergents to insure 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 create sludge that thickens the oil, plugs filters and causes excessive foaming.
 - Minimize valve recession to provide longer head life.

APPLICATIONS: CITGO Pacemaker Gas Engine Oil 1600 Series oils are low ash oils 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.

These oils are recommended for high and medium speed 4-cycle engines manufactured by Caterpillar, Waukesha, Superior, Cooper-Bessemer; Cummins, Dresser-Rand (Categories I, II and III), as well as low-speed engines manufactured by Cooper-Bessemer and Worthington C4-Cycle.

CITGO Pacemaker Gas Engine Oil 1640LP is a specially formulated SAE 40 grade product that exhibits superior low temperature properties, compared with other monograde oils. This low pour product is particularly well suited for applications where improved low temperature fluidity is needed, but a monograde oil is recommended by the engine manufacturer.

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| CUSTOMER BENEFITS: | <ul style="list-style-type: none">• Cleaner pistons• Minimum oil viscosity increase• Low wear• Improved TBN retention | <ul style="list-style-type: none">• Catalyst compatible• Clean crankcases and top decks• Reduced valve recession |
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TYPICAL PROPERTIES:

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Product Name	1615	1630	1640	1640LP
SAE Grade	15W-40	30	40	40
Material Code	632047001	632045001	632046001	632048001
Gravity, ASTM D 4052, °API	30.6	29.7	28.7	28.7
Pounds Per Gallon	7.27	7.31	7.35	7.35
Flash Point, COC, ASTM D 92, °F (°C)	446 (230)	466 (241)	511 (266)	511 (266)
Viscosity, ASTM D 445, cSt at 40°C	96.7	89.2	125.1	126.6
cSt at 100°C	13.6	10.9	13.3	13.5
Viscosity Index, ASTM D 2270	141	107	101	102
Pour Point, ASTM D 97, °F (°C)	-27 (-33)	-27 (-33)	+10 (-12)	-33 (-36)
Color, ASTM D 1500	L5.0	L4.5	L4.5	L4.5
Carbon Residue, % (base stock)	0.02	0.02	0.02	0.02
Sulfated Ash, ASTM D 874, m%	0.5	0.5	0.5	0.5
Total Base No., ASTM D 2896, mg KOH/g	4.0	4.0	4.0	4.0
Total Acid No., ASTM D 664, mg KOH/g	0.60	0.63	0.52	0.59
Phosphorous, ppm	280	280	280	280