



CITGO® Pacemaker® Gas Engine Oil 1000 Series

OVERVIEW



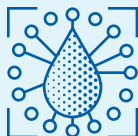
- Ashless stationary natural gas engine lubricants fortified with an ashless dispersant, corrosion inhibitor, oxidation inhibitor, and antiwear additive package.
- 1000 Series has a history of outstanding performance in gas processing, gas transmission, and other applications calling for a high-quality, ashless natural gas engine oil.
- Available in a single viscosity grade at the midpoint between SAE 30 and SAE 40 grades and an SAE 15W-40 grade.

FEATURES & BENEFITS



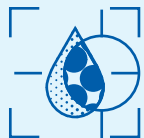
- Use of high viscosity index base stocks with low carbon residue minimizes carbon and varnish formation and maximizes oil oxidation life.
- Contain no bright stock.
- Ashless formulation provides maximum protection against spark plug fouling.
- Ashless dispersant system provides excellent cleaning action to keep piston rings free in their grooves, extending overhaul periods and engine life.
- Excellent resistance to oxidation.
- Superior corrosion protection to vital engine and compressor components.
- Superior protection against ring belt and port deposits in 2-cycle engine designs.

APPLICATIONS



- For use in a wide variety of 2- and 4-cycle gas engine designs.
- Meet the performance requirements for Dresser-Rand Categories I and II, as well as requirements for other gas engine manufacturers requiring ashless engine oils.
- CITGO Pacemaker Gas Engine Oil 1035 is specially formulated to provide enhanced low-temperature properties. Excellent performance where low temperature fluidity is needed but a monograde viscosity is preferred.
- Can be used in compressor cylinder lubrication.

PROPERTIES



Typical Properties for CITGO Pacemaker Gas Engine Oil 1000 Series:

| Product Name | 1015 | 1035 |
|---|-----------|-----------|
| SAE Grade | 15W-40 | 30/40 |
| Material Code | 632210001 | 632032001 |
| Gravity, ASTM D4052, °API | 31.0 | 29.8 |
| Pounds Per Gallon | 7.25 | 7.31 |
| Flash Point, COC, ASTM D92, °F (°C), Min. | 471 (244) | 543 (284) |
| Fire Point, COC, ASTM D92, °F (°C), Min. | 514 (268) | 563 (295) |
| Viscosity ASTM D445 | | |
| cSt at 40°C | 99.9 | 121.2 |
| cSt at 100°C | 13.8 | 12.9 |
| Viscosity Index, ASTM D2270 | 139 | 99 |
| Pour Point, ASTM D97, °F (°C) | -22 (-30) | -27 (-33) |
| Color, ASTM D1500 | L2.0 | L2.0 |
| Carbon Residue, % (base stock) | 0.02 | 0.02 |
| Total Acid No., ASTM D664, mg KOH/g | 0.51 | 0.43 |
| Total Base No., ASTM D2896, mg KOH/g | 1.0 | 1.0 |
| Phosphorus, ppm | 400 | 400 |
| Antiwear | Yes | Yes |
| Corrosion Inhibitor | Yes | Yes |
| Dispersant | Yes | Yes |
| Foam Suppressor | Yes | Yes |
| Oxidation Inhibitor | Yes | Yes |

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