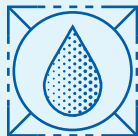




CITGO® Pacemaker® SD Oils

OVERVIEW



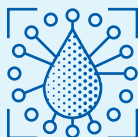
- High-quality circulating lubrication oils specifically designed for steel mill applications, with superior oil/water separation characteristics, oxidation stability, and rust and corrosion protection. Available in viscosity grades 220, 320, 460, and 680.
- Exceed Siemens AG requirements for Morgoil® Advanced Bearing Lubricant ‘Super Demulsibility’ specification.

FEATURES & BENEFITS



- Outstanding water removal characteristics.
- Long service life in circulating systems.
- Corrosion protection and foam control.
- Excellent filterability.
- Deposit control.

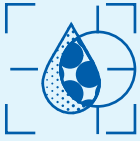
APPLICATIONS



- Recommended for circulating systems requiring AGMA R&O type lubricants and operating in severe conditions, such as water contamination. These products allow rapid oil separation from water at steel mill operating temperatures, especially in Siemens AG (formerly Morgan Construction Company) steel mill roll bearings.
- Can be used as:
 - Gear oils
 - Compressor oils
 - Rust- and oxidation-inhibited (R&O) oils
 - Roll bearing lubricants (blooming, slabbing, hot and cold strip mills)
 - Morgoil® lubrication system oils
 - MESTA® system oils

Morgoil and MESTA are registered trademarks of Siemens AG.

PROPERTIES



Typical Properties for CITGO Pacemaker SD Oils:

Grade	220	320	460	680
Material Code	633044001	633045001	633047001	633050001
Gravity, ASTM D4052, °API	28.2	28.2	27.6	26.6
Density, lb/gal	7.37	7.37	7.41	7.45
Flash Point, ASTM D92, COC, °F (°C)	464 (240)	464 (240)	554 (290)	554 (290)
Viscosity ASTM D445				
cSt at 40°C	220	320	460	676
cSt at 100°C	18.7	23.7	30.3	39.3
Viscosity Index, ASTM D2270	95	96	96	96
Pour Point, ASTM D97, °F (°C)	0 (-18)	5 (-15)	5 (-15)	5 (-15)
Color, ASTM D1500	4.0	4.0	4.5	4.5
Rust Test, ASTM D665 A	Pass	Pass	Pass	Pass
Demulsibility, ASTM D2711 (ml Emulsion at 125°F)	1.0 max.	1.0 max.	1.0 max.	1.0 max.
Water Separation, ASTM D1401 at 180°F (ml Emulsion at 40 minutes)	3.0 max.	3.0 max.	3.0 max.	3.0 max.
Foam Test, ASTM D892, Seq. I, II, III	Pass	Pass	Pass	Pass
AGMA Grade	5	6	7	8

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