CITGO PACEMAKER® SD OILS

Date 09/13

DESCRIPTION: CITGO Pacemaker SD "Super Demulsibility" Oils are high quality circulating lubrication oils, with superior oil/water separation characteristics, oxidation stability, and rust and corrosion protection specifically designed for steel mill applications. Available in viscosity grades 220, 320, 460 and 680. CITGO Pacemaker Oils exceed Siemens AG requirements for Morgoil® Advanced Bearing Lubricant "Super Demulsibility" specification.

QUALITIES: CITGO Pacemaker SD Oils are formulated to provide:

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

APPLICATIONS: CITGO Pacemaker SD Oils are recommended for circulating systems requiring AGMA R&O type lubricants operating in severe conditions such as water contamination. These products were developed to allow rapid oil separation from water at steel mill operating temperatures, especially in Morgan Construction Company steel mill roll bearings.

CITGO Pacemaker SD Oils can be used as:

- Gear oils
- Compressor oils
- Rust/oxidation inhibited (R&O) oils
- Roll bearing lubricant (blooming, slabbing, hot and cold strip mills)
- Morgoil® lubrication system oils
- MESTA® system oils

_____

Morgoil and MESTA are registered trademarks of Siemens AG.

(Continued)

CITGO PACEMAKER® SD OILS

Date 09/13 - (Continued)

TYPICAL PROPERTIES:

CITGO PACEMAKER® SD OILS

Grade	**220**	**320**	**460**	**680**
Material Code	633044001	633045001	633047001	633050001
Gravity, ASTM D 4052, °API	28.2	27.0	26.5	26.6
Density, lb/gal	7.37	7.43	7.41	7.45
Flash Point, ASTM D 92, COC, °F (°C)	464 (240)	464 (240)	554 (290)	554 (290)
Viscosity:				
ASTM D 445, cSt at 40°C	220	320	460	676
100°C	18.7	23.7	30.3	39.3
Viscosity Index, ASTM D 2270	95	96	96	96
Pour Point, ASTM D 97, °F (°C)	0 (-18)	5 (-15)	5 (-15)	5 (-15)
Color, ASTM D 1500	4.0	4.0	4.5	4.5
Rust Test, ASTM D 665 A	Pass	Pass	Pass	Pass
Demulsibility, ASTM D 2711 (ml Emulsion at 125°F)	1.0 max.	1.0 max.	1.0 max.	1.0 max.
Water Separation, ASTM D 1401 at 180°F (ml Emulsion at 40 minutes)	3.0 max.	3.0 max.	3.0 max.	3.0 max.
Foam Test, ASTM D 892, Seq. I, II, III	Pass	Pass	Pass	Pass
AGMA Grade	5	6	7	8