PHILLIPS 66 LUBRICANTS

Ecoterra® Paper Machine Oil

Ashless Paper Machine Circulating Oil

Phillips 66® Ecoterra® Paper Machine Oil is a high-quality, ashless circulating oil developed for use in modern papermaking machines. It is recommended for use in paper machines manufactured by all leading OEMs. It is specially formulated to provide excellent detergency while still maintaining excellent water-separating properties. It does not contain zinc or other heavy metals, and is non-toxic to aquatic species.

Ecoterra Paper Machine Oil is formulated with an ashless additive package specially tailored for papermaking machines. It has good oxidation resistance and thermal stability at high temperatures to minimize deposit formation and provide long service life. It has excellent detergency to help maintain system cleanliness. It has excellent water-separating properties to minimize the formation of emulsions, and passes the Pall Filterability Test for both new oil and "aged" oil contaminated with water. It has good load-carrying capacity for wear protection, protects system components against rust and corrosion, and has good foam resistance.

Applications

- Circulating systems of paper machines, including wet-end systems, dryer sections, and calender stacks
- Circulating systems for heavily loaded bearings where moisture contamination is a problem and operating temperatures are high
- Reduction gears and gear-head motors
- Vacuum pumps and water pumps

Features/Benefits

- Ashless formulation; does not contain zinc or other heavy metals
- Non-toxic to aquatic organisms
- Excellent detergency
- Excellent water-separating properties
- Excellent filterability for use with fine porosity filters
- Good oxidation resistance and thermal stability
- High load-carrying capacity
- Protects against rust and corrosion
- Good foam resistance

KEEPING THE WORLD RUNNING SMOOTHLY

LUBRICANTS

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Typical Properties			
ISO Grade	**150**	**220**	**320**
Specific Gravity @ 60°F	0.884	0.888	0.892
Density, lbs/gal @ 60°F	7.36	7.40	7.43
Color, ASTM D1500	3.0	3.5	4.0
Flash Point (COC), °C (°F)	270 (518)	270 (518)	280 (536)
Pour Point, °C (°F)	-12 (10)	-12 (10)	-12 (10)
Viscosity			
cSt @ 40°C	150	220	320
cSt @ 100°C	14.5	19.0	24.0
SUS @ 100°F	789	1,163	1,704
SUS @ 210°F	77.7	96.8	119
Viscosity Index	95	97	95
Copper Corrosion, ASTM D130, 48 hrs @ 80°C	1a	1a	1a
Demulsibility, ASTM D1401, minutes to pass	10	10	10
Foam Test, ASTM D892, Seq. I, mL	10/0	10/0	10/0
Rust Test, ASTM D665 A&B	Pass	Pass	Pass
Timken OK Load, ASTM D2782, lb	50	60	70
Zinc, wt %	Nil	Nil	Nil

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via http://www.phillips66.com/EN/products/Pages/MSDS.aspx.

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Typical properties are average values only and do not constitute a specification. Minor variations that do not affect product performance are to be expected during normal manufacture, and at different blending locations. Product formulations are subject to change without notification.

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