

PRODUCT INFORMATION

A PRODUCT OF AMERICAN CHEMICAL TECHNOLOGIES, INC.



EcoGear[®] 320XP

Full-Synthetic High Performance Wind Turbine Lubricant

DESCRIPTION:

EcoGear[®] 320XP is based on polyether polyol (PAG) and surface improvement additive package developed from advances in lubrication used in aerospace lubrication technology.

When activated by high specific loads and corresponding temperatures, the additive package helps to equalize surface roughness without creating abrasion. This results in surface improvement by the additives.

EcoGear[®] 320XP is a CLP-PG gear lubricant (according to DIN 51502) and exceeds the minimum requirements according to DIN 51517, part 3, CLP gear oils.

APPLICATION:

EcoGear[®] 320XP may be used in spur gear, bevel gears or planetary gear units and in heavy loaded gear units, e.g. wind turbine main gears. It is also suitable for the lubrication of oil-lubricated rolling bearings.

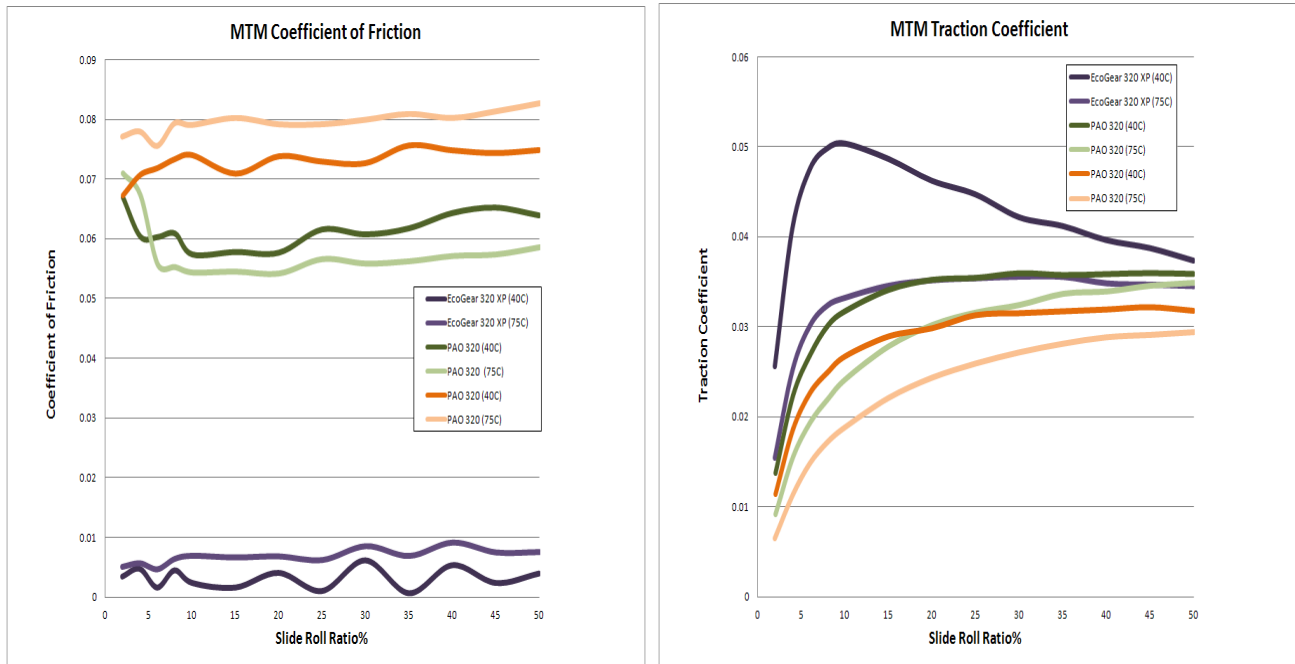
Depending on the specific application, **EcoGear[®] 320XP** may be used in an operating temperature range from -30 °C to +95 °C.

BENEFITS:

- High load carrying capacity
- Superior friction reduction
 - Reduced wear rates
 - Superior micro-pitting protection
 - Excellent bearing lubrication suitability
- Superior air release properties
- Good filtration properties
- Extended service life
- Reduced lubricant and maintenance costs.
- Superior oxidative stability and will not degrade to form varnish and sludge
- Superior hydrolytic stability
- High Viscosity Index
 - Eliminates seasonal performance differences
 - Facilitates cold-weather startups
 - Eliminates motor overloading during startup
- Reduced energy consumption

The EcoGear[®] Series products have superior lubrication characteristics with a high Viscosity Index. **EcoGear[®] 320XP** contains special aerospace additives that further reduce the coefficient of friction of the lubricant.

EcoGear[®] 320XP



The PAO 320 is a commercial synthetic hydrocarbon gear oil product currently used and marketed for wind turbine gear boxes.

Mini-Traction Machine analysis of **EcoGear[®] 320XP** shows a dramatic decrease in the coefficient of friction and the lowest wear quotients under all test conditions.

The MTM traction coefficient highlights the superior performance of the **EcoGear[®] 320XP** base chemistry. It is the combination of the lubrication characteristics of the base chemistry with a low coefficient of friction that will provide superior protection in the most challenging wind-turbine applications.

EcoGear[®] 320XP gear lubricant can be applied by an oil can, oil cup reservoir, splash, spray mist or by automatic dispensing equipment and central or circulation systems.

EcoGear[®] 320XP is manufactured from polyether polyol (PAG) and may not be compatible with all paints. Compatibility should verify the suitability of elastomers, the previous fluid, and exposure to painted surfaces.

It is partially soluble with mineral oils and esters. This means that traces up to 2% of previous oil in the gear case after draining will not pose any problems. However, the beneficial effects of the special XP additives are reduced when mixed with other gear oils. **EcoGear[®] 320XP** are fully formulated, extreme-pressure lubricants for enclosed industrial gears. They are formulated to provide excellent lubrication, stability, and extended service life, while eliminating many of the problems commonly encountered with petroleum gear lubricants. **EcoGear[®] 320XP** takes advantage of the many inherent advantages of their polyalkylene glycol-base fluids and those of the superior additive package developed and proven in years of industrial use. The result is a superior gear lubricant that provides cost savings to the end user.

EcoGear[®] 320XP

PROPERTIES:

	Test Method	EG320XP
Appearance		Clear – Light Yellow
Viscosity @ 40°C	ASTM D445	319 cSt
Viscosity @ 100°C	ASTM D445	46 cSt
Viscosity Index	ASTM D2270	205
Pour Point	ASTM D97	-35°C (-31°F)
Specific Gravity	ASTM D1298	0.997 g/cm ³
Flash Point	ASTM D92	223°C (433°F)
Fire Point	ASTM D92	304°C (579°F)
Total Acid Number	ASTM D664	0.6 mgKOH/g
Rust Prevention (24h)	ASTM D665A,B	Pass
Copper Strip Corrosion	ASTM D130	1a
Turbine Oil Stability Test 1000h	ASTM D2893	0%
Foam Tendency/Stability		
Sequence I		30/0
EP Properties (Four-Ball Method)	ASTM D2783	
Weld Point		315 kgf
Load-Wear Index		83.08 kgf
OK Load (Timken Method) , minimum	ASTM D2509	90 lb-f

The information contained herein is correct to the best of our knowledge. The recommendations or suggestions contained in this bulletin are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory prior to use. Our responsibility for claims arising from breach of warranty, negligence, or otherwise is limited to the purchase price of the material. Freedom to use any patent owned by American Chemical Technologies' or others is not to be inferred from any statement contained herein.