

## 222EP READILY BIODEGRADABLE, INDUSTRIAL ISO 220 GEAR OIL

### Description

EnviroLogic® 222EP is a readily biodegradable gear oil for use in industrial applications. EnviroLogic® 222EP is an ISO 220 viscosity grade, AGMA 5EP oil, having the highest anti-wear/extreme pressure properties, excellent corrosion and rust protection, and outstanding system cleanliness characteristics. In addition, it can directly replace petroleum oil based products of the same viscosity. The excellent performance characteristics of EnviroLogic® 222EP make it suitable in a wide variety of industrial gear applications where incidental exposure of the oil to the environment is of concern. Examples are off-shore oil and gas, marine transportation & construction, steel milling, mining, and power utility operations. In the event of an oil spill or leak, the fluid biodegrades thereby minimizing any environmental impact.

EnviroLogic® 222EP Series meets most stringent extreme FZG wear/extreme pressure test combinations of temperature, speed and pressure. It is self certified as Environmentally Acceptable Lubricant (EAL) compliant with 2013 US EPA Vessel General Permit (VGP).

It meets or exceeds the following performance levels:

- Aegir
- AGMA 9005 (5EP)
- AGMA 250.04/251.02 (5EP)
- Berg
- Blohm + Voss
- Chesterton
- Cincinnati Milacron P-74
- David Brown S1.53.101
- DIN 51517, Part 3
- IHC Merewede
- James Walker
- Kamewa
- Kemel
- Ortlinghaus
- Rolls Royce
- Schottel
- U.S. Steel 224
- Wartsila

Property	Method	Spec.	Result
Kinematic Viscosity At 40°C, cSt	D445	198.0 – 242.0	220
At 100°C, cSt			31
Viscosity Index	D2270		> 175
Density(60°F), g/cm <sup>3</sup>	D4052		0.85
Pour Point, °C	D97	-9 min.	-36
Flash Point (COC), °C	D92		180

Property	Method	Spec.	Result
Copper Corrosion 3 Hrs. @ 100°C	D130	1b min.	1b
Steel Pin Corrosion (4 hours, 140°F)	D665		
Deionized Water		Pass	Pass
Synthetic Salt Water		Pass	Pass
Foam Properties	D892		
Sequence I, mL	Tendency/Stability	50/0	50/0
Sequence II, mL	Tendency/Stability	50/0	50/0
Sequence III, mL	Tendency/Stability	50/0	50/0
Demulse Properties (54°C)	D1401		
Oil / Water / Emulsion			40 / 40 / 0
Minutes		30 max.	10
TOST Oxidation	D943		
Hours to TAN of 2.0 mg KOH/g			> 1500 ---
Air Release @ 90°C	D3427	9 max.	8.0
Four Ball EP	D2783		
Weld Load	250 min.		315
LWI, kg	45 min.		48.7
Four Ball Wear	D4172 Mod.		
54°C/1800 rpm/20 kg/1 Hr.	Scar, mm		0.34
Timken Wear	D2782		
OK Load, lbs.	60 min.		> 60
Fail Load, lbs.	---		> 65
FZG (A/8.3/90)	D5182		
Pass Stage			14
FZG (A10/16.6R/90)			
Pass Stage			12
FZG (A10/16.6R/30)			
Pass Stage			12
FE 8 Bearing			
Roller/Cage, mg			0.7/48.8
Gear Oil Oxidation	D2893B		
Δ 100°C K.V. @ 312 Hrs.	6% max.		4.2%
Elastomer Compatibility			
Buna N (100°C 168 Hours)	D471		Pass
Viton (150°C 168 Hours)	D471		Pass
Biodegradability	D7373	60% min.	> 60
Ecotoxicity			
Fathead minnow	OECD 203	> 100mg/L	> 1000 mg/L
Daphnia	OECD 202	> 100mg/L	> 130 mg/L
Algae	OECD 201	> 100mg/L	> 120 mg/L

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for problems you don't.™

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