

## 232 READILY BIODEGRADABLE, INDUSTRIAL ISO 320 GEAR OIL

### Description

EnviroLogic® 232 is a readily biodegradable synthetic gear oil for use in industrial applications. EnviroLogic® 232 is an ISO 320 viscosity grade, AGMA 6EP oil, having high AW/EP 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® 232 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 by 60% or more within 28 days, thereby minimizing any environmental impact.

EnviroLogic® 232 is self certified as an Environmentally Acceptable Lubricant (EAL) compliant with 2013 US EPA Vessel General Permit (VGP).

It meets or exceeds the following performance levels:

- Aegir
- AGMA 9005 (6 EP)
- AGMA 250.04/251.02 (6 EP)
- Berg
- Blohm + Voss
- Chesterton
- Cincinnati Milacron P-59
- David Brown S1.53.101
- DIN 51517, Part 3
- IHC Merwede
- James Walker
- Kamewa
- Kemel
- Ortlinghaus
- Schottel
- U.S. Steel 224
- Wartsila

Property	Method	Spec.	Result
Kinematic Viscosity At 40°C, cSt	D445	288.0 –	320
		352.0	
At 100°C, cSt			41
Viscosity Index	D2270		> 175
Density(60°F), g/cm <sup>3</sup>	D4052		0.85
Pour Point, °C	D97	-9 min.	-33
Flash Point (COC), °C	D92		185

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 Minutes		30 max.	40 / 40 / 0 10
TOST Oxidation	D943		
Hours to TAN of 2.0 mg KOH/g			> 1500 ---
Air Release @ 90°C	D3427		22.0
Four Ball EP	D2783		
Weld Load	250 min.		> 250
LWI, kg	45 min.		> 48
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	D5182		
Pass Stage	12 min.		14
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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9609 Jackson Street  
Mentor, Ohio 44060  
800-661-3558  
rscbio.com

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