

## READILY BIODEGRADABLE HYDRAULIC FLUID

### Description:

EnviroLogic® 146 hydraulic fluid is a readily biodegradable and biobased ISO 46 grade hydraulic oil for use in general purpose hydraulic systems. EnviroLogic® 146 is based on natural ester technology and is a direct replacement for petroleum oil based hydraulic fluids of the same viscosity. EnviroLogic® 146 exceeds the requirements of petroleum oil based hydraulic fluids and has excellent anti-wear characteristics. EnviroLogic® 146 is intended for use in applications with temperature requirements ranging from -20°F to 200°F and pressure requirements up to 5000 psi. EnviroLogic® 146 demonstrates outstanding low temperature viscosity. EnviroLogic® 146 has reduced environmental impact in the event of a leak or spill, as it is readily biodegradable and non-sheening.

EnviroLogic® 146 is self certified as an Environmentally Acceptable Lubricant (EAL) compliant with 2013 US EPA Vessel General Permit (VGP).

The fluid meets or exceeds the requirements of:

- USDA BioPreferred\*
- MIL-PRF-32073 Grade IV
- Parker/Denison
- Eaton/Vickers
- Sauer Danfoss
- Jacobsen
- Casappa
- Elliot International Equipment

Property	Method	Requirements	Result
Kinematic Viscosity	D445		
At 40°C, cSt		41.4 – 50.6	46
At 100°C, cSt		6.1 min	10.4
Viscosity Index	D2270	90 min	200
Density (60°F), kg/m <sup>3</sup>	D4052	Report	920
Density (60°F), lbs/gal	D4052	Report	7.66
API Gravity (60°F)	D1298	Report	22.3
Pour Point, °C	D97	-12 max	-36
Flash Point (COC), °C	D92	185 min	270
Acid Number, mgKOH/g	D664	Report	0.30
Steel Pin Corrosion (24 hours, 100°C)	D665	Pass	
Deionized Water			Pass
Synthetic Salt Water			Pass
Copper Corrosion (3 hours, 100°C)	D130	2 max	1B

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Property	Method	Requirements	Result
Foam Properties (after 10 minutes)	D892		
Sequence I, mL		50-0 max	50-0
Sequence II, mL		50-0 max	50-0
Sequence III, mL		50-0 max	50-0
Demulse Properties (54°C)	D1401		
Oil / Water / Emulsion		40 / 37 / 3	40 / 40 / 0
Minutes		30 max	30
Copper Corrosion (3 hours, 100°C)	D130	2 max	1B
Hydrolytic Stability	D2619		
Copper Weight Loss, mg/cm <sup>3</sup>			0.09
Change in Acid Number, mgKOH/g			0.09
Appearance of Copper Panel			1B
Four Ball Wear	D4172		
75°C/ 1200 rpm/ 40 kg/ 1 Hr., mm			0.61
Vickers 35VQ25 Vane Pump	35VQ25		
Run 1			
Ring Weight Loss, mg		Total loss of ring	6.1
Vane Weight Loss, mg		and vane, 90 mg max	2.2
Run 2			
Ring Weight Loss, mg		Total loss of ring	0.6
Vane Weight Loss, mg		and vane, 90 mg max	3.8
Run 3			
Ring Weight Loss, mg		Total loss of ring	7.1
Vane Weight Loss, mg		and vane, 90 mg max	2.9
FZG (A/8.3/90), fail load	D5182	10 min	10
Vickers V104C Vane Pump	ISO 20763		
Loss of ring, mg		120 max	1.9
Total loss of vanes, mg		30 max	4.8
Denison HF-6 Hybrid Pump	T6H20C		
Total loss of pistons, mg		300 max	186.7
Total loss of vanes and pins, mg		15 max	1.4
Filterability	ISO 13357		
Dry Stage I, %		80 min	106.9
Dry Stage II, %		60 min	102.6
Wet Stage I, %		50 min	96.8
Wet Stage II, %		50 min	94.3
Biodegradability	D7373	> 60	> 60
Ecotoxicity			
Fathead minnow, 96h LC50, ppm	OECD 203	> 100	> 10,000
Daphnia magna, 48h EC50, ppm	OECD 202	> 100	> 100
Algae, 72h EC50, ppm	OECD 201	> 100	> 100

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Property	Method	Requirements	Result
Elastomer SRE-NBR-1 (100°C 168 hours)	D471	Pass	Pass
Elastomer HNBR (100°C 168 hours)	D471	Pass	Pass
Elastomer FKM (100°C 168 hours)	DIN 1817	Pass	Pass
Compatibility with Select Hydraulic Fluids			
Biodegradable Competitor stored @ 100°F		Pass	Pass
Biodegradable Competitor stored @ -5°F		Pass	Pass
Petroleum Hydraulic Fluid stored @ 100°F		Pass	Pass
Petroleum Hydraulic Fluid stored @ -5°F		Pass	Pass

\*based on actual/component data

NOTICE: While this information is presented in good faith and believed to be accurate, RSC Bio Solutions does not guarantee satisfactory results from reliance thereon. The data is offered solely for your information and RSC Bio Solutions disclaims all liability for any loss or damage from its use. Thoroughly test any application according to the product directions and independently conclude satisfactory performance. Nothing contained herein is to be construed as a recommendation to use the product in violation of any patent.



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