



35585 Curtis Boulevard • Eastlake, Ohio 44095 • (440) 951-8633 • (440) 951-4341 FAX

EnviroLogic[®] 146

Biodegradable Hydraulic Fluid

Description

EnviroLogic[®] 146 Hydraulic Fluid is a readily biodegradable and non-hazardous 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. EnviroLogic[®] 146 exceeds the requirements of petroleum oil based hydraulic fluids and has excellent antiwear characteristics. EnviroLogic[®] 146 demonstrates outstanding low temperature viscometric properties. The fluid will meet or exceed the requirements of most major hydraulic equipment manufacturers.

Typical Properties

Flash Point, °F	ASTM D-92	>400	
Specific Gravity, 60°F	ASTM D-1122		0.92
Degrees API		22.3	
Viscosity @ 40°C, cSt.	ASTM D-445		46.0
Viscosity @ 100°C, cSt.	ASTM D-445		10.4
Viscosity Index	ASTM D-2270		200
Pour Point, °C	ASTM D-97		-36
Brookfield viscosity @ -30°C, cPs	ASTM D-2983	5100	

Performance Properties

Foam Sequence I, II, III	ASTM D-892		Pass
Copper Corrosion 3 hours @ 100°C	ASTM D-130		1a
Hydrolytic stability, Copper loss / appearance/ NNA	ASTM D-2619		0.14 / 1b / 0.07



"Solutions for a Greener World"



35585 Curtis Boulevard • Eastlake, Ohio 44095 • (440) 951-8633 • (440) 951-4341 FAX

EnviroLogic[®] 146

Biodegradable Hydraulic Fluid

Performance Properties (cont.)

Rust , ASTM D-665 A (Distilled Water)	Pass
Rust, ASTM D-665 B (Synthetic Sea Water)	Pass
Demulsibility, ASTM D-1401 oil / water / emulsion (minutes)	40-40-0 (15)

Wear Performance

Four Ball Wear, ASTM D-4172 1 hr., 167°F, 1800 rpm, 40 kg., scar mm.	0.40
Timken Wear, ASTM D-2782 OK Load, lbs.	50
Hydraulic Pump Test, ASTM D-2282 mg. wt. loss, ring and vanes	3.4
Four Ball Wear (modified ASTM D-2266) (2.0% water contamination in the test oil)	0.7

Oxidative Stability

Oxidative Stability, ASTM D-2272 RBOT, min. to 25 psi loss	80 - 100
Static Oxidation Test 168 hrs. @ 150°C condition of beaker	clean

Biodegradability

ASTM D5864, %	>60
---------------	-----



"Solutions for a Greener World"



35585 Curtis Boulevard • Eastlake, Ohio 44095 • (440) 951-8633 • (440) 951-4341 FAX

EnviroLogic[®] 146

Biodegradable Hydraulic Fluid

Performance Properties (cont.)

Ecotoxicity

Fathead minnow, 96h LC50, ppm	>10,000
Daphnia magna, 48h EC 50, ppm	>10,000
Sludge respiration inhibition, EC50, ppm	>10,000
Algae EC50, ppm	100 – 1000

Pump Performance

Vickers 35VQ25 Pump (3000 psi, 2400 rpm 93.3C)	Pass
Total Ring & Vane Weight Loss (mg) First 50h Test	8.0
Second 50h Test	11.0
Third 50h Test	8.0

Vickers V-104C Pump (2000 psi, 1200 rpm 79.4 C)	Pass
Total Ring & Vane Weight Loss (mg)	4.0

Denison T-5D Vane Total weight loss (2000 psi, 93.3C, 100h)	Pass
---	------

Seal Compatibility

Buna	Pass
Nitrile	Pass
Viton	Pass