

LE's MONOLEC® Hydraulic Oils Greatly Outperform Commercial Hydraulic Oils In Three Critical Tests.

	Test	Upper Limits for "Acceptable" Performance	LE's MONOLEC® Hydraulic Oil	Commercial Oil		
				A	B	C
1. In this test, a sample of the test oil and preweighted copper test rods are heated in a beaker at 135°C for 168 hrs. At the end of this time period, the amount of sludge and the weight loss of the copper test rod are determined.	Cincinnati Milacron Thermal Stability Sludge, mg Copper wt. loss, mg	25 10	5 Nil	148 8	270 5	120 7
2. In this test an oil sample is reacted with a controlled flow of oxygen in the presence of water and an iron-copper catalyst at 95°C. The test is continued until the measured total acid number (TAN) of the oil reaches 2.0 mg KOH/GM. The sludge forming tendencies are measured by weighing the oxidation by-product residue formed during the test. And metal attack is measured by the weight loss of the catalyst metal.	Oxidative Stability, ASTM D-943 Sludge, mg Copper, mg Iron, mg	200 5 50	44 20 1	290 195 3	450 270 10	380 170 7
3. This test measures the relative stability of hydraulic fluids in the presence of water and a copper test specimen while rotating at 93°C for 48 hours.	Hydrolytic Stability, ASTM D-2619 Copper wt. loss, mg Acidity of water layer, mg KOH	0.2 4.0	0.05 Nil	0.8 3.5	0.5 2.8	1.4 4.5

PHYSICAL CHARACTERISTICS - TYPICAL:

	6105	6110	6120	6520
ISO Grade	22	46	68	---
Equivalent SAE Grade	---	---	20	5W-20
Gravity, °API	33.1	31.2	30.6	31.7
Viscosity				
SUS @ 100°F	110.9	240.4	348.9	169.6
SUS @ 210°F	40.03	48.82	55.13	46.79
cSt @ 40°C	21.21	46.77	67.56	33.29
cSt @ 100°C	4.17	6.84	8.69	6.24
Viscosity Index	95	95	95	135
Flash Point, °F (°C)	375 (190)	415 (212)	435 (224)	385 (196)
Pour Point, °F (°C)	-33 (-36)	-27 (-33)	-22 (-30)	-44 (-42)
Color	Red	Red	Red	Red

PERFORMANCE TEST REQUIREMENTS:

Copper Corrosion,				
ASTM D-130	1b	1b	1b	1b
Rust Test,				
ASTM D-665B	pass	pass	pass	pass
Oxidation Test, hrs.,				
ASTM D-943	2600	2600	2600	2600
Water Separation, ASTM D-1401				
ml oil-ml water-ml emulsion (mins.)	40-40-0 (5)	40-40-0 (5)	40-40-0 (5)	40-40-0 (5)
Fire Resistant Fluid	No	No	No	No
Dielectric Strength,				
ASTM D-877, KV	38	38	38	38

MEETS PERFORMANCE REQUIREMENTS OF:

Rexroth	Denison HF-O
AFNOR 48-600	David Brown ET-33
U.S. Steel 126/127	DIN 51524 & 51525
USDA H2	
Vickers I-286-S (Industrial) and M-2950-S (Mobile)	
Cincinnati Machine P-69 (6120) and P-70 (6110)	

LUBRICATION
ENGINEERS, Inc.

Leaders in Lubricants

