

BIODEGRADABLE ANTIWEAR HYDRAULIC OILS

Vickers V-104C Vane Pump Test

(Results obtained @ 2000psi, 150 F., 100Hr)

CAM Ring Wt. Loss (mg)	3.1
Vanes Wt. Loss (mg)	0.8
Total CAM Ring + Vanes Wt. Loss (mg)	3.9 mg.

Vickers 20 VQ 5 Vane Pump Test

(Results obtained @ 2000psi, 150 F., 100Hr)

CAM Ring Wt. Loss (mg)	1.0 mg.
Vanes Wt. Loss (mg)	0.0 mg.
Total CAM Ring + Vanes Wt. Loss (mg)	1.0 mg.
Initial Flow Rate	4.0 GPM
Final Flow Rate	4.0 GPM

Vickers 20 VQ Vane Pump Test

(Results obtained @ 3000psi, 150 °F., 100 Hr)

CAM Ring Wt. Loss (mg)	1.0 mg.
Vanes Wt. Loss (mg)	0.0 mg.
Total CAM Ring + Vanes Wt. Loss (mg)	1.0 mg.
Initial Flow Rate	4.0 GPM
Final Flow Rate	4.0 GPM

	TEST 1	TEST 2	TEST 3
CAM Ring Wt. Loss (mg)	8.0	8.0	10.0
Vanes Wt. Loss (mg)	0.0	3.0	0.0
Total Cam Ring + Vanes Wt. Loss (mg)	8.0	11.0	10.0
Initial Flow Rate			
Final Flow Rate			

Additional Performance Testing:

		Competitor A
Rotary Bomb Oxidation, (minutes), ASTM D2272	165	25
Hydrolytic Stability, ASTM D	0.01	0.01
Copper Wt. Loss (mg)	1B	1B
Copper Appearance	0.17	0.75
Water Layer	96	96
ASTM D 943, Hours	0/0, 0/0, 0/0	27/0, 20/0, 270/0
ASTM D 892, Foam Seq. I,II,III		
ASTM D 655, Rust		
Distilled Water	Pass-Clean	Pass-Clean
Syn. Sea Water	Pass-Clean	Pass-Clean
ASTM D 1401, Demulsibility		
MS Oil/Water/Emulsion	41/39/0	41/39/0
4 Ball Wear (1 hr, 167 F., 1200 RPM, 40 kg)	0.51/0.51	0.48/0.48
ASTM D 130, Copper Strip (3 hrs. @ 100 C.)	1A	1A