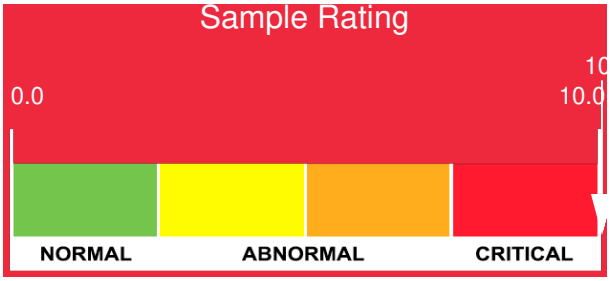
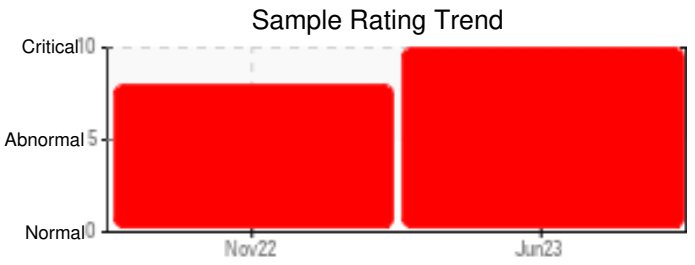




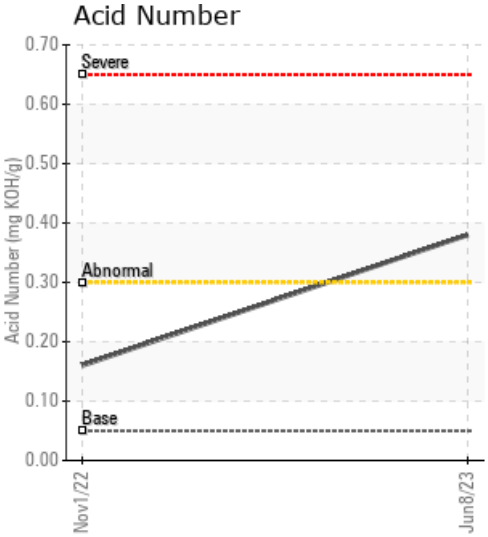
THERMAX VT-35

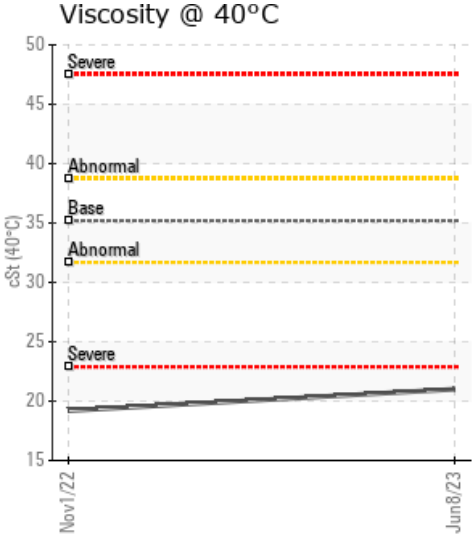
Customer: PTRHTF60029	System Information	Sample Information
Envireau Pacific Inc. Ground Floor Babista Bldg. J.Palma Gil St. Davao City, ZZ 8000 PH Attn: Francis Ramirez Tel: E-Mail: fxbramirez@envireaupacific.com	System Volume: 18500 ltr Bulk Operating Temp: 572F / 300C Heating Source: Blanket: Fluid: SHELL THERMIA B Make: THERMAX VT 35	Lab No: 02568361 Analyst: Philip Riley Sample Date: 06/08/23 Received Date: 07/06/23 Completed: 07/18/23 Philip Riley philip.riley@HFSinclair.com

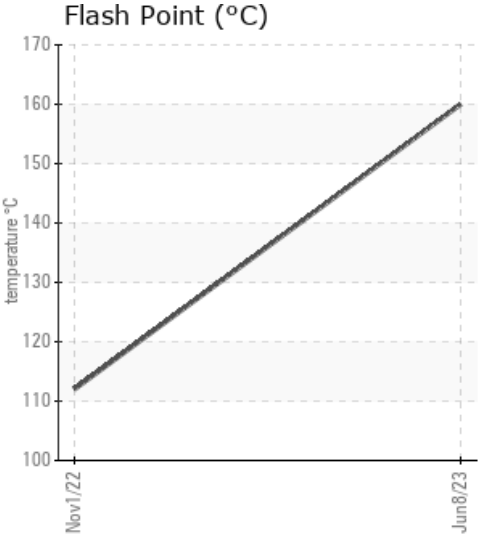
Recommendation: Since the last sample, the flash point has been recovered, but not enough to be a safe working environment. An oil change is strongly recommended for many reasons, that combined make this a critical change. I suspect there has been a partial change here as opposed to venting as there has been an increase in viscosity.The sample shows clear evidence of thermal cracking, and based on the temperature of the system and the flash point of the oil, this reinforces the need for change, including 2xclean and a flush. There are issues with both the low boilers and the creations of insolubles (which need to be removes)Recommendation is for change as soon as possible, with a clean (twice for cleaning cycle due to level of insoluble matter) and a flush.

Comments: Pentane Insolubles levels are severely high. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. (GCD) 90% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. Acid Number (AN) is abnormally high.

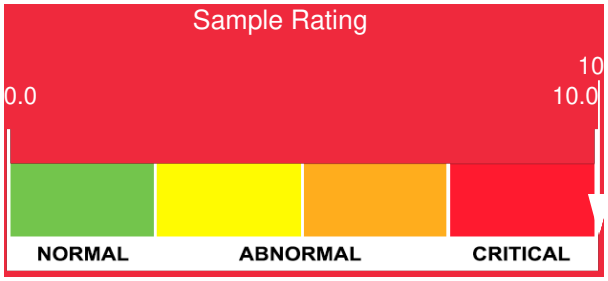
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/08/23	07/06/23	5.0y	Dryer Area	320 / 160	106.1	21.0	0.38	1.52	478 / 248	747 / 397	860 / 460	26.89
11/01/22	11/15/22	4.5y	CONDENSER	234 / 112	81.8	19.2	0.16	1.15	521 / 272	773 / 411	884 / 473	18.64
Baseline Data				428 / 220		35.2	0.05		714 / 379		903 / 484	2.60

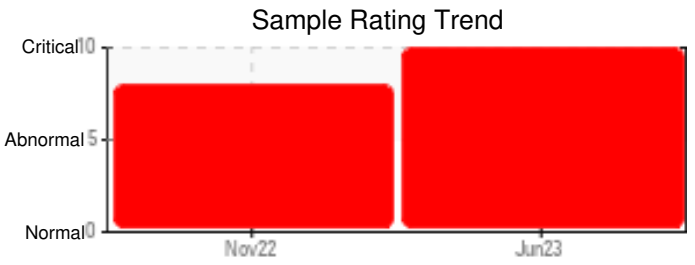






PETRO-CANADA LUBRICANTS

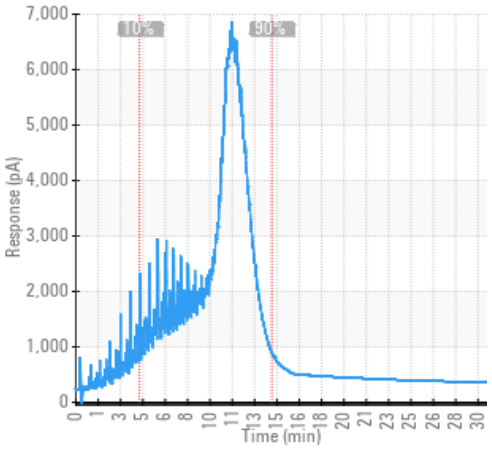




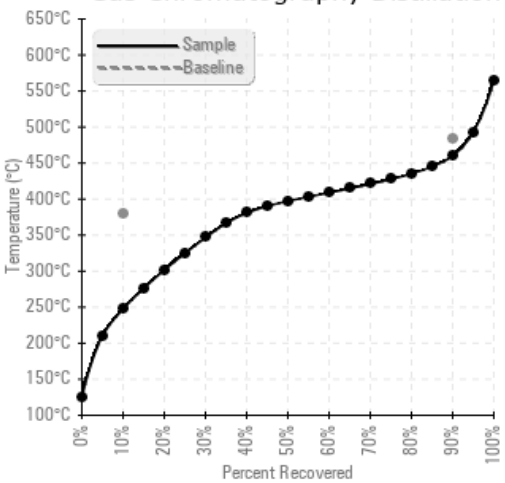
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
06/08/23	2	0	0	0	9	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	38	1
11/01/22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
Baseline Data			0	0						0			0	0					0				0	

Elemental anaysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]

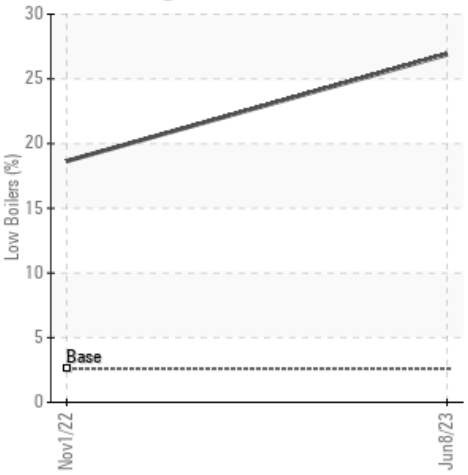
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

11/01/22	We recommend that you vent the expansion tank to remove low boilers which assists in restoring the flash point of the fluid. The low flash point is indicative of a potential fire safety hazard. We recommend an early resample to monitor this condition. Pentane Insolubles levels are severely high. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) 90% Distillation Point is marginally low.