

[TOURMALINE / LSD 03-18-80-17W6] SUNRISE HM #1

Customer: PTRHTF20046
 QUADRA CHEMICALS
 12925 146TH STREET
 EDMONTON, AB T5L 2H6 CANADA
 Attn: Quadra Samples
 Tel:
 E-Mail: quadra_samples@quadra.ca

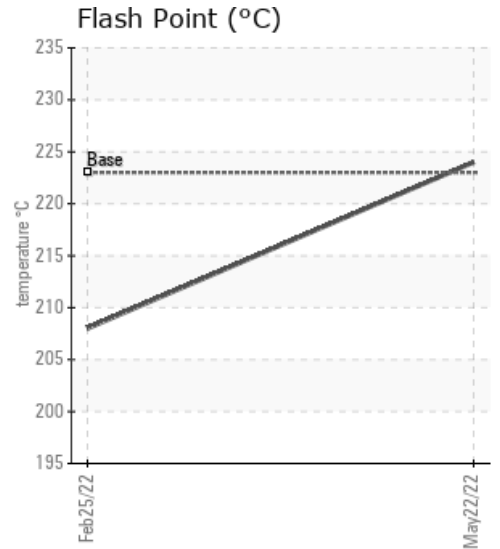
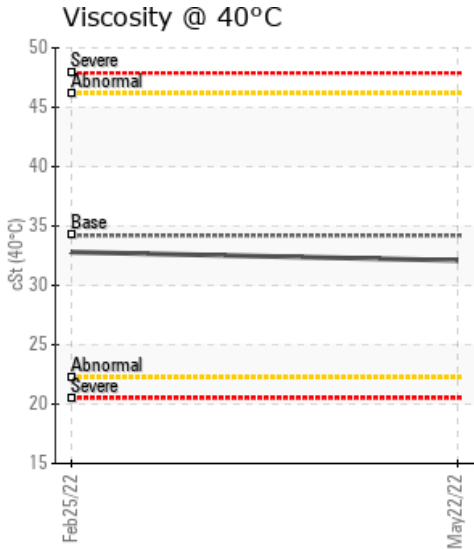
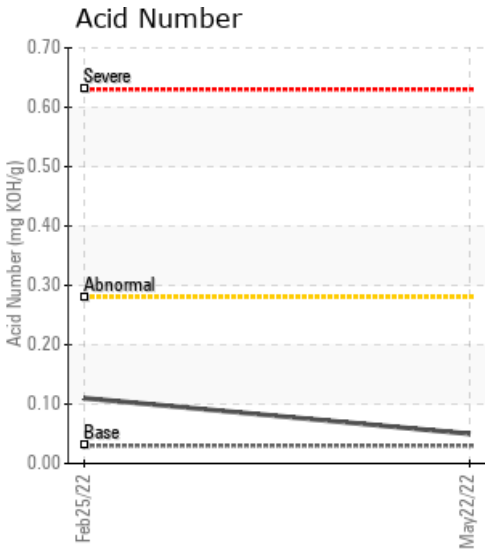
System Information
 System Volume: 0 ltr
 Bulk Operating Temp: 387F / 197C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA PETRO-THERM
 Make:

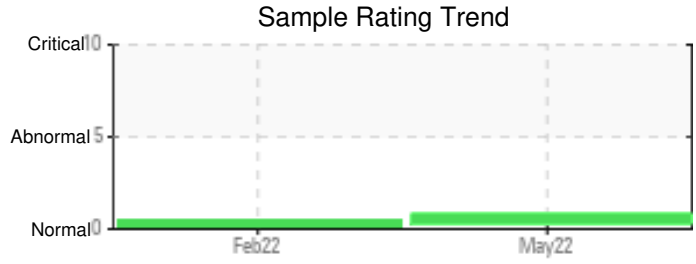
Sample Information
 Lab No: 02492747
 Analyst: Clinton Buhler
 Sample Date: 05/22/22
 Received Date: 06/06/22
 Completed: 06/13/22
 Clinton Buhler
 Clinton.Buhler@hollyfrontier.com

Recommendation: Sample results indicate the fluid is in suitable condition for continued service. As part of sound heat transfer fluid maintenance, please perform regular venting of the expansion tank. Please ensure blanket gas is functional after venting. Please re-sample after 12 months.

Comments: (GCD) 90% Distillation Point is marginally low.

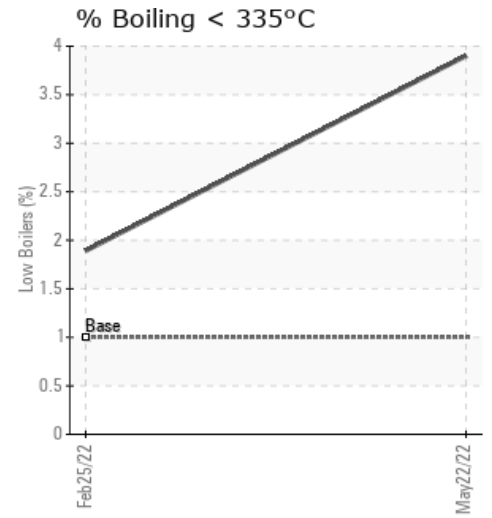
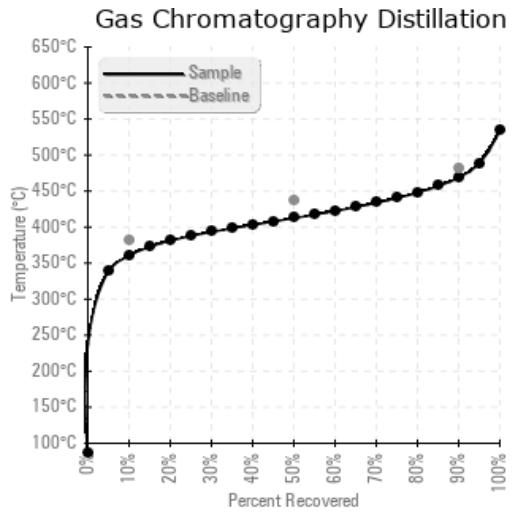
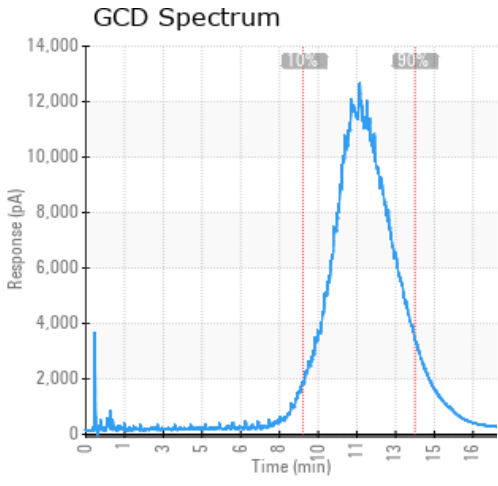
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/22/22	06/06/22	0.0y		435 / 224	136.9	32.1	0.05	0.102	681 / 360	774 / 412	875 / 469	3.90
02/25/22	03/10/22	0.0y	surge tank return	406 / 208	152.0	32.8	0.11	0.294	720 / 382	812 / 434	915 / 491	1.89
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
05/22/22	13	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
02/25/22	24	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	4	0	0	0
Baseline Data			0	0						0		0	0					0				0		

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



Historical Comments

02/25/22	Sample results indicate that the fluid is in suitable condition for continued service. Please re-sample in 12 months. Please always thoroughly flush sample valve and related piping before taking sample.
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