

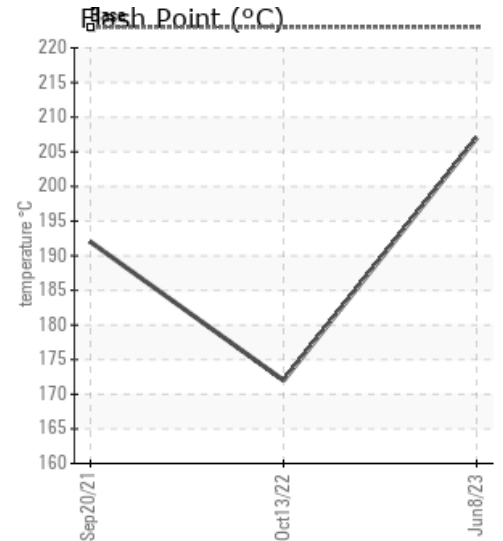
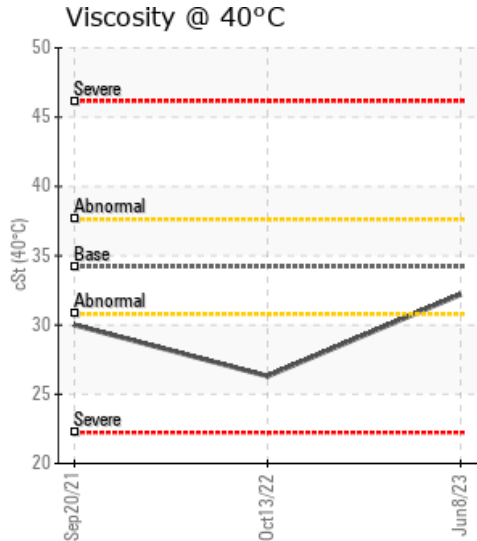
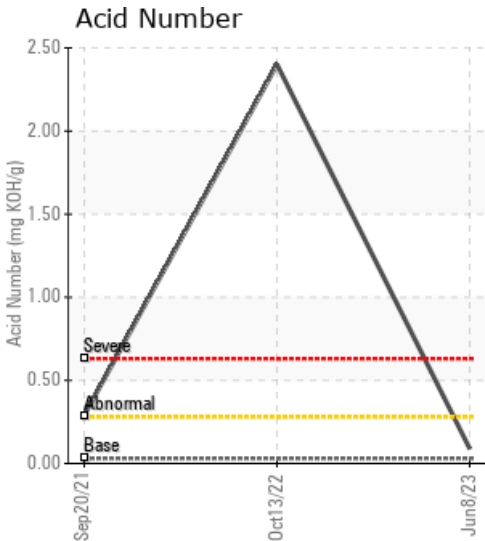
LINE 1

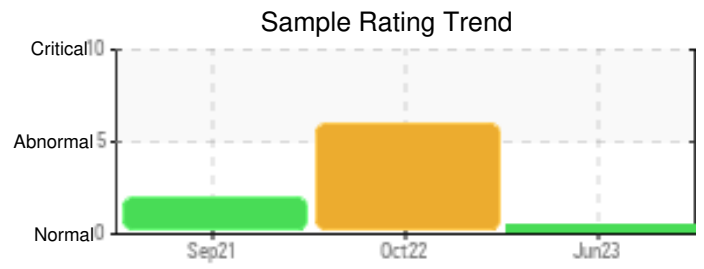
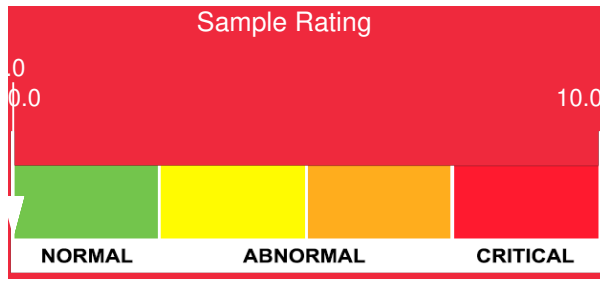
Customer: PTRHTF10249	System Information	Sample Information
BONDED LOGIC 1465 SHATTUCK INDUSTRIAL BLVD LAFAYETTE, GA 30728 US Attn: David Bennett Tel: (423)834-0323 E-Mail: davidb@bondedlogic.com	System Volume: 200 gal Bulk Operating Temp: 365F / 185C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: STERLING	Lab No: 02566486 Analyst: Jake Finn Sample Date: 06/08/23 Received Date: 06/26/23 Completed: 06/28/23 Jake Finn jake.finn@HFSinclair.com

Recommendation: Acid number and pentane insolubles have significantly improved compared to the previous sample. Some indication of very lite debris was noted by the lab. Otherwise the sample indicates the system fluid is suitable for continued use. Please resubmit for testing in 12 months.

Comments: N/A

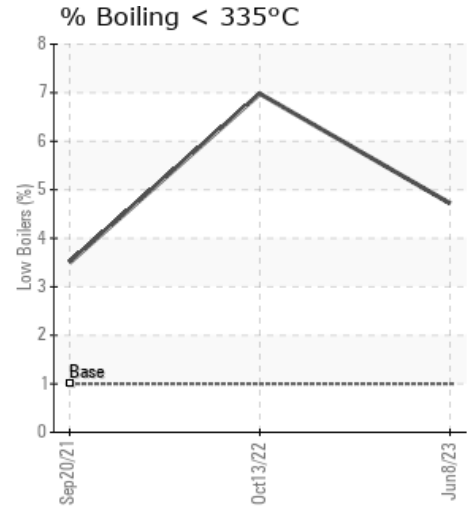
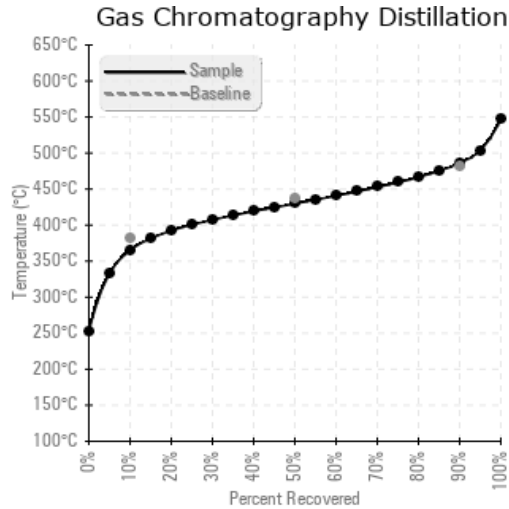
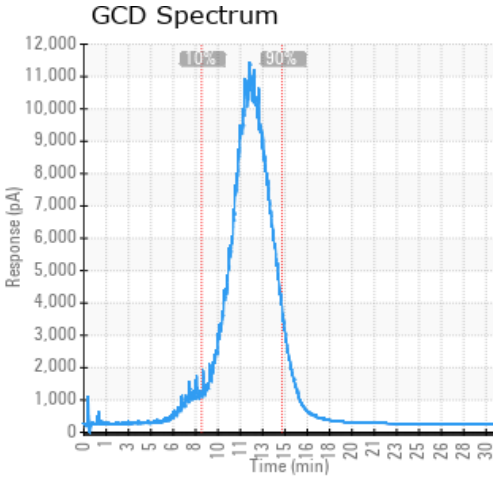
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/08/23	06/26/23	40.0h		405 / 207	21.5	32.2	0.09	0.063	690 / 365	805 / 430	907 / 486	4.72
10/13/22	10/11/22	0.5h	RETURN LINE	342 / 172	76.6	26.3	2.40	0.624	672 / 356	799 / 426	897 / 481	6.98
09/20/21	09/27/21	2.0h	DRAIN LINE	378 / 192	52.6	30.0	0.29	0.121	714 / 379	814 / 435	911 / 489	3.50
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
06/08/23	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
10/13/22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
09/20/21	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	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

10/13/22	Sample indicates severe degradation. Acid number is at 2.4 compared to the previous sample at 0.29 (September 2021). This usually indicates the fluid has experienced oxidation due to high heat in the presence of oxygen. Although the fluid condition is in critical condition, the sample does not currently show signs of wear or corrosion in the system. With high acid number, however, it is highly likely that this could change in the near future. To avoid unscheduled maintenance due to failed components in the system, I recommend draining and refilling the system with new Petro-Therm. Once the system has sufficiently circulated the new fluid, a new sample can be tested to ensure the acid number has reached an acceptable limit and will establish a new baseline for future evaluation. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. COC Flash Point is abnormally low. Visc @ 40°C is abnormally low.
09/20/21	High acid number and low flash point indicate the fluid in system has experienced some oxidation. There is no current indication of system component wear or contamination, but if system remains as is, it could result in corroded parts or component wear. Recommended to drain system and refill with fresh Petro-Therm, followed by regular oil analysis every 12 months. If possible, also perform visual inspection of system when fluid is replaced. Acid Number (AN) is abnormally high. COC Flash Point is marginally low.

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