

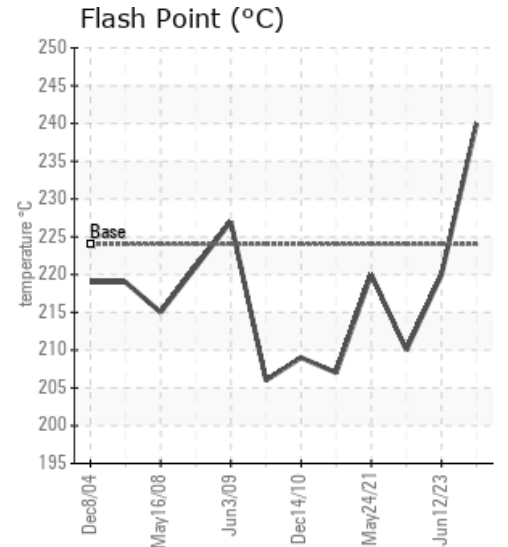
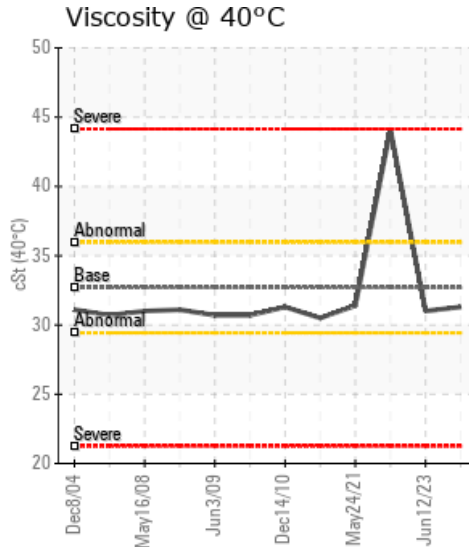
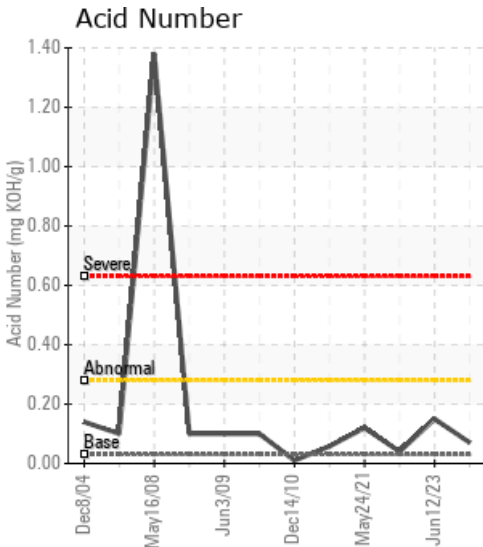
SYSTEM #2

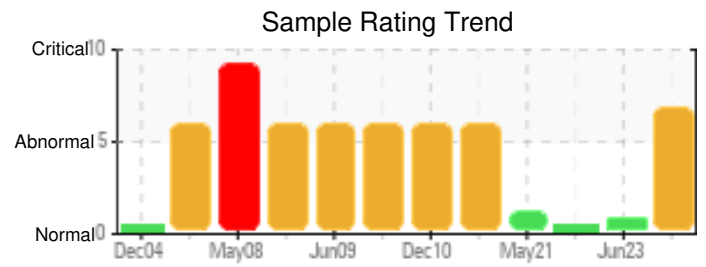
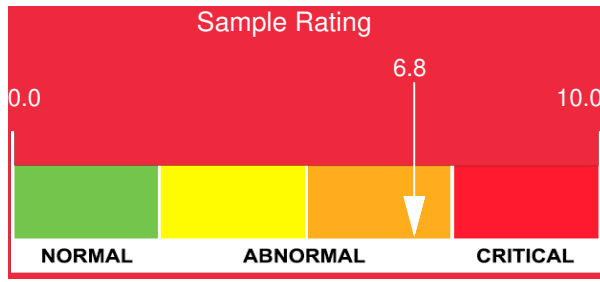
Customer: PTRHTF10073	System Information	Sample Information
SHEPHERD COLOR 4539 DUES DRIVE CINCINNATI, OH 45246 US Attn: Vera Bostwick Tel: (513)874-0714 E-Mail: vbostwick@shepherdcolor.com	System Volume: 1000 gal Bulk Operating Temp: 420F / 216C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: FIRST THERMAL	Lab No: 02636810 Analyst: Joe Goecke Sample Date: 05/07/24 Received Date: 05/21/24 Completed: 05/27/24 Joe Goecke Joe.goecke@HFSinclair.com

Recommendation: Unusual level of sodium. Suggest investigating possible sources of contamination, salt from winter, or other chemical that contains sodium at the plant that could get into the system. Other parameters look normal and system can be used until next sample period.

Comments: Sodium ppm levels are severely high. (GCD) 90% Distillation Point is marginally high.

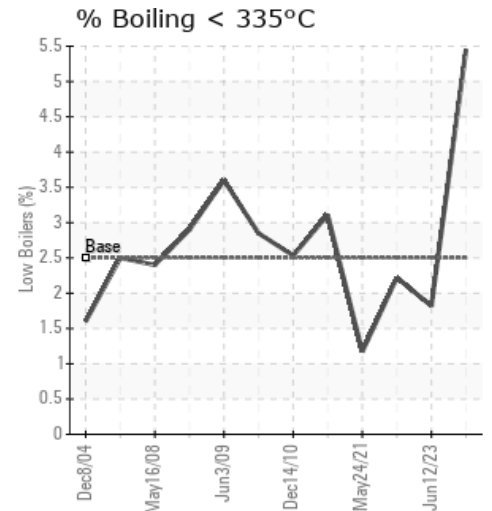
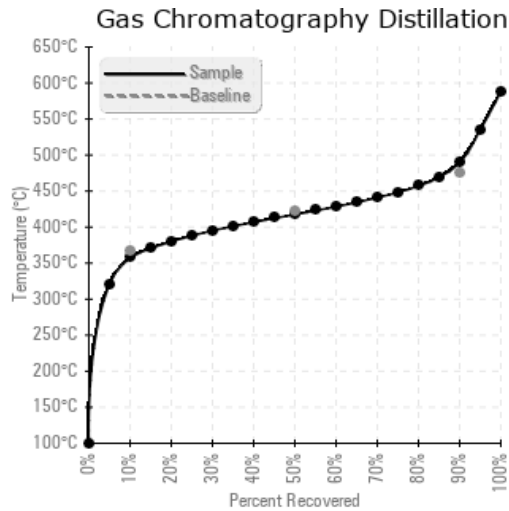
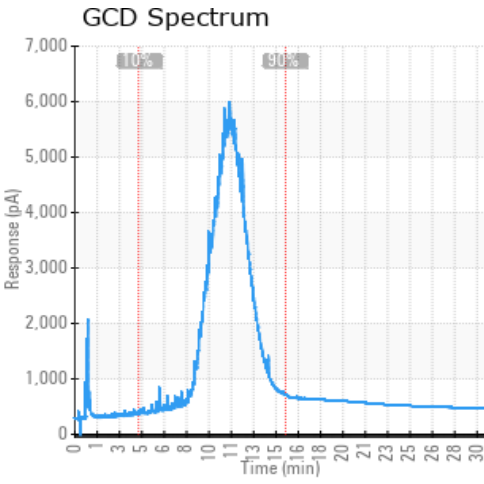
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/07/24	05/21/24	4.5y	PUMP	464 / 240	39	31.3	0.07	0.111	675 / 357	784 / 418	913 / 489	5.45
06/12/23	06/29/23	3.5y		428 / 220	21.8	31.0	0.15	0.053	707 / 375	807 / 430	910 / 488	1.82
06/20/22	06/30/22	2.5y	before inlet	410 / 210	44.2	44.1	0.04	0.081	693 / 367	795 / 424	898 / 481	2.22
05/24/21	06/01/21	0.0y	Reactor outlet	428 / 220	26.6	31.4	0.12	0.120	703 / 373	792 / 422	901 / 483	1.17
03/17/14	03/26/14	9.3y		405 / 207	31.9	30.5	0.058	0.221	686 / 364	788 / 420	877 / 470	3.11
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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
05/07/24	12	0	0	0	0	0	0	0	0	0	2	56	2	0	0	0	2	0	0	0	0	0	229	0
06/12/23	2	0	0	0	0	0	0	0	0	0	2	12	0	0	0	0	0	0	0	0	0	0	216	1
06/20/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0
05/24/21	6	0	0	0	0	0	0	0	0	0	4	34	0	0	0	0	1	0	0	0	0	0	226	0
03/17/14	10	0	0	0	0	0	0	0	0	0	1	78	0	0	0	0	3	0	0	0	2	0	60	0
Baseline Data			0	0						0			0	0					0				270	

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



Historical Comments	
06/12/23	Fluid is in great shape. Viscosity back to a normal level, water is down as is dirt. Continue to operate as normal and resample next year. (GCD) 90% Distillation Point is marginally high.
06/20/22	Sample looks very good and similar to last sample. Viscosity made an unusual jump up 13 points. We are rechecking to confirm this number. All other parameters are very good, continue to use and resample at next scheduled interval.
05/24/21	System slightly high in sodium but not too bad. Flash point viscosity and low boilers all in great shape. Continue to use and resample at regular schedule. Sodium ppm levels are abnormally high.
03/17/14	contamination with coolant appears to be slightly worse. Iron wear has increased slightly. The source on ingress needs to be identified and eliminated. Sample at 1/2 interval Sodium ppm levels are severely high.

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