

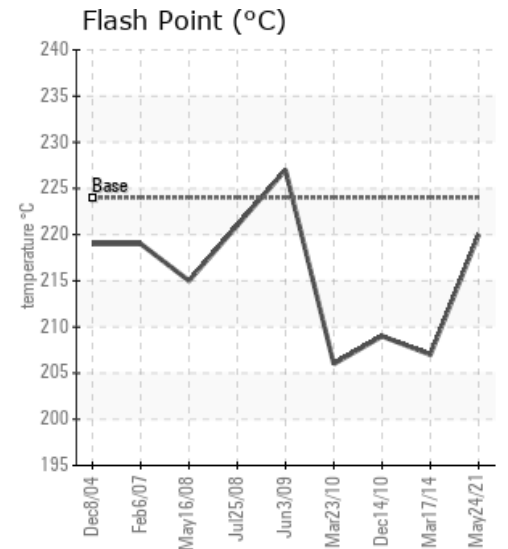
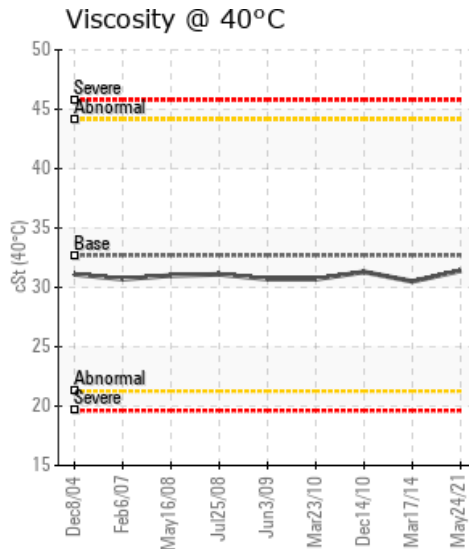
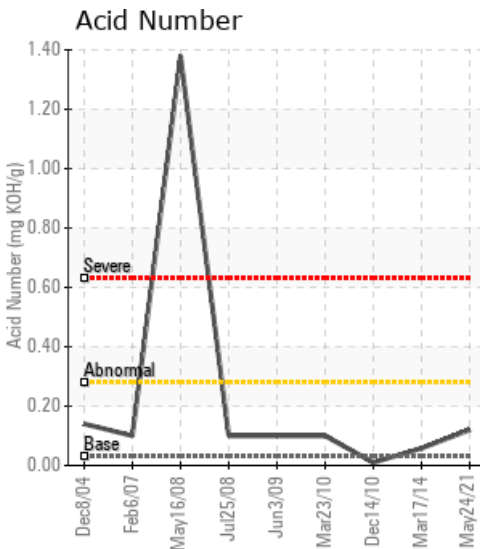
SYSTEM #2

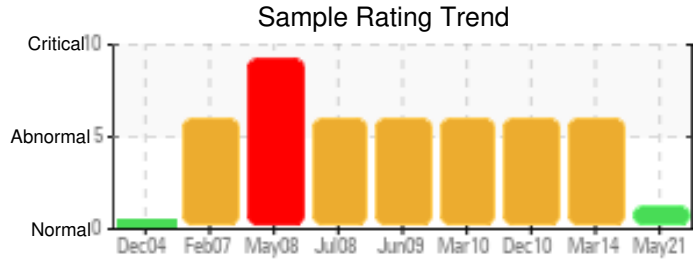
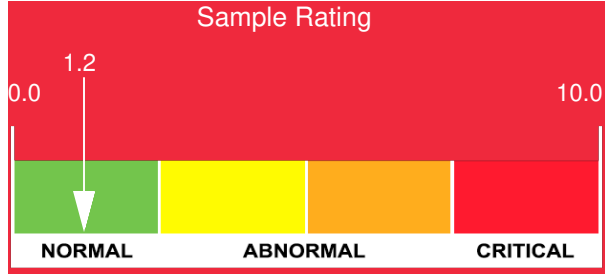
Customer: PTRHTF10073	System Information	Sample Information
SHEPHERD COLOR 4539 DUES DRIVE CINCINNATI, OH 45246 USA Attn: Trevor Jasper Tel: (513)874-0714 E-Mail: tjasper@shepherdcolor.com	System Volume: 1000 gal Bulk Operating Temp: 420F / 216C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: FIRST THERMAL	Lab No: 02424453 Analyst: Joe Goecke Sample Date: 05/24/21 Received Date: 06/01/21 Completed: 06/15/21 Joe Goecke Joe.goecke@hollyfrontier.com

Recommendation: 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.

Comments: Sodium ppm levels are abnormally high.

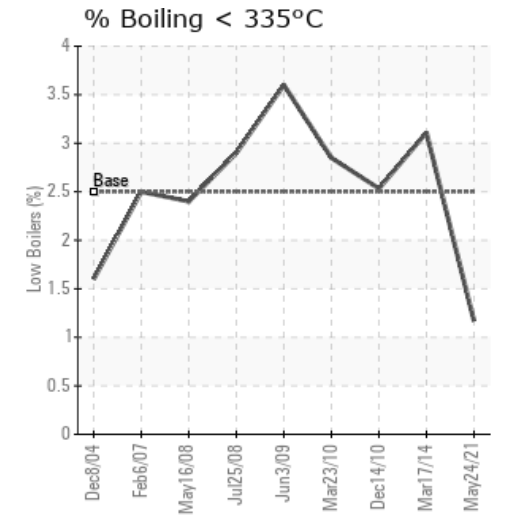
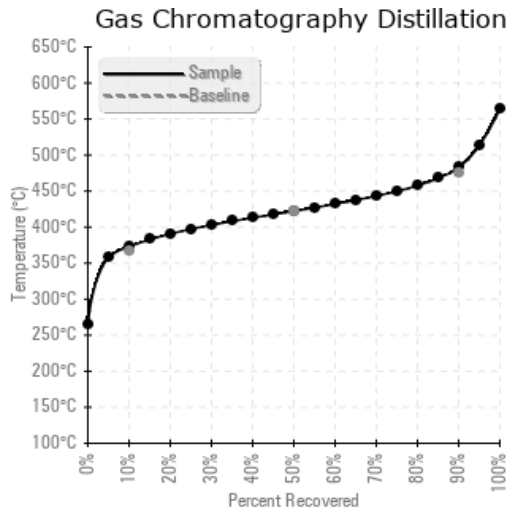
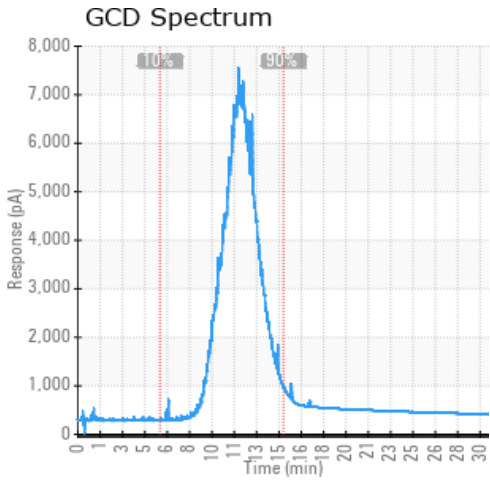
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/24/21	06/01/21	0.0y	Reactor outlet	428 / 220	26.6	31.4	0.12	0.120	703 / 373	792 / 422	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
12/14/10	12/21/10	6.0y	PUMP SUCTION	408 / 209	15	31.3	0.01	0.013	697 / 369	790 / 421	884 / 474	2.533
03/23/10	03/25/10	6.0y	CIRCULATING PUMP STA	403 / 206	33	30.7	0.1	0.028	690 / 366	783 / 417	875 / 468	2.849
06/03/09	06/03/09	5.0y		441 / 227	53	30.7	0.1	0.24	682 / 361		882 / 472	3.6
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
05/24/21	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
12/14/10	6	0	0	0	0	0	0	0	0	0	0	58	0	0	0	0	2	0	0	0	2	0	51	0
03/23/10	5	0	0	0	0	0	1	0	0	0	0	69	0	0	0	0	2	0	0	0	0	0	69	0
06/03/09	9	0	0	0	0	0	1	0	0	0	1	84		0	0		3			0	0	0	72	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	
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.
12/14/10	Not much has changed since the last sample. Everything looks good. The fluid is suitable for further use based on these results. Keep up the good work and re-sample in 9 months or so to monitor the fluid condition.
03/23/10	The results are consistent with past history. No degradation or contamination seem to have occurred since the last sample. We suggest to re-sample near December 2010.
06/03/09	

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