

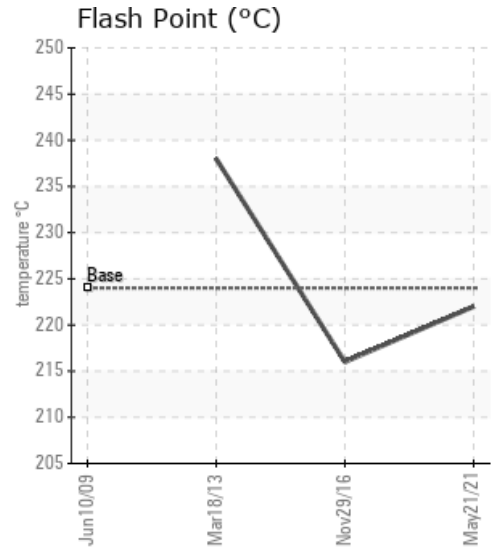
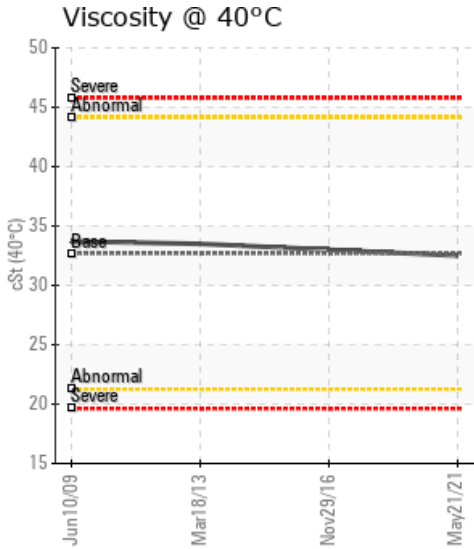
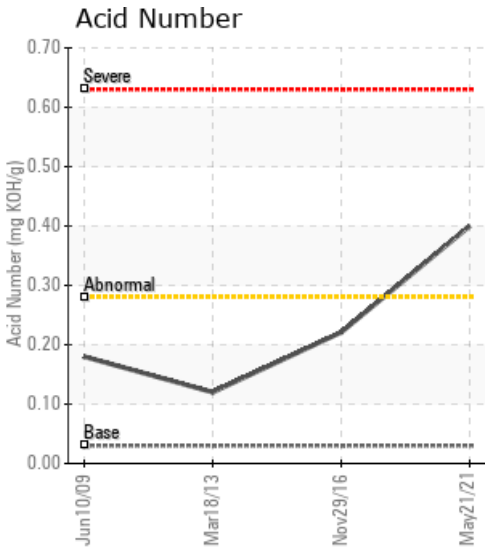
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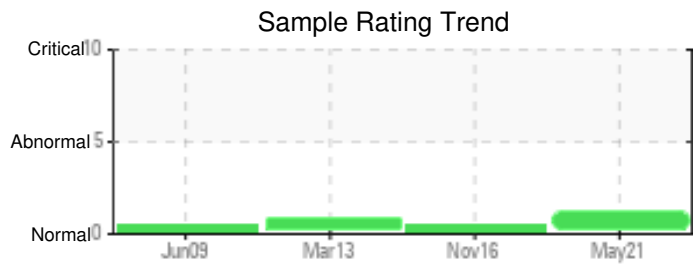
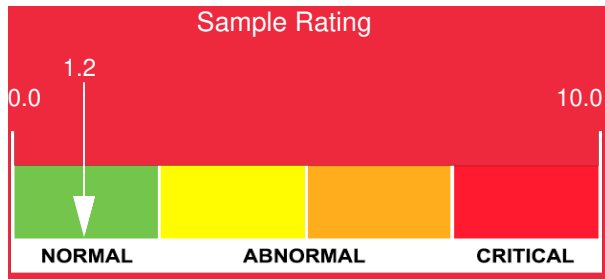
Customer: PTRHTF10011	System Information	Sample Information
G.F.S. CHEMICAL 851 Mckinley Avenue COLUMBUS, OH 43222 USA Attn: Jamie Walters Tel: (800)446-4910 E-Mail: jamie@gfschemicals.com	System Volume: 50 gal Bulk Operating Temp: 350F / 177C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: CHROMALOX	Lab No: 02448264 Analyst: Joe Goecke Sample Date: 05/21/21 Received Date: 10/05/21 Completed: 10/08/21 Joe Goecke joe.goecke@hollyfrontier.com

Recommendation: Acid Number seeing a slight uptick and is double the previous sample. However given the time and all other parameters being normal I recommend continued use and resample at next scheduled date.

Comments: Acid Number (AN) is abnormally high.

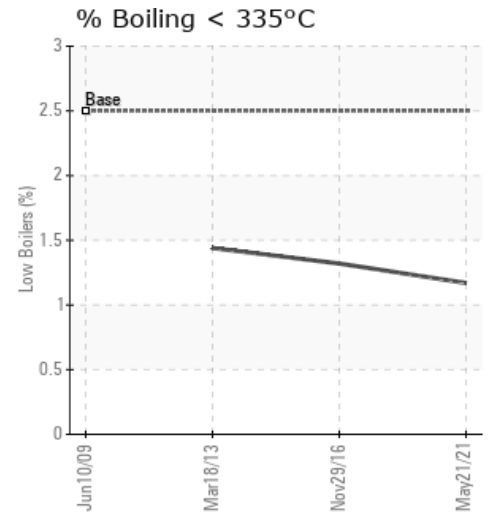
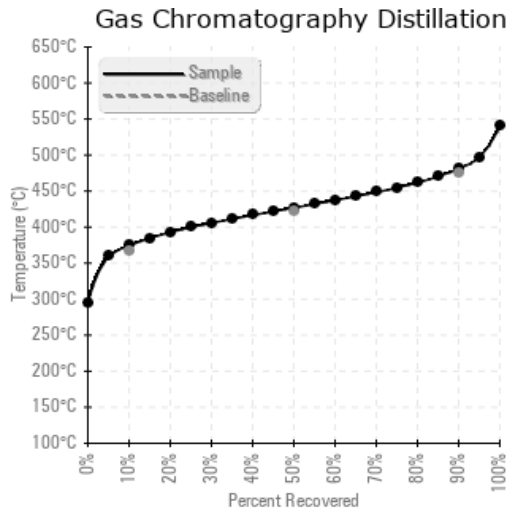
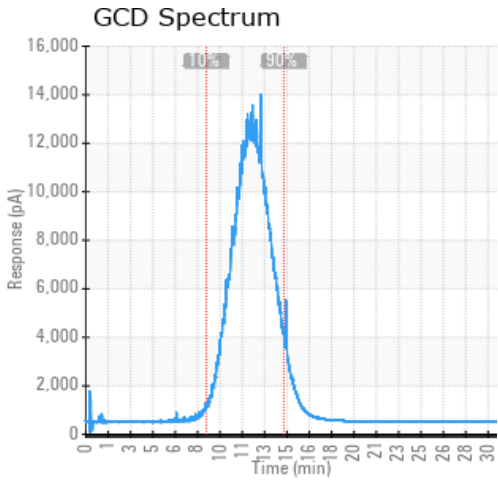
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/21/21	10/05/21	12.0y		432 / 222	17.8	32.5	0.40	0.161	706 / 374	800 / 427	898 / 481	1.17
11/29/16	12/20/16	0.0y		421 / 216	23.0	33.0	0.221	0.067	701 / 371	802 / 428	899 / 482	1.32
03/18/13	03/28/13	0.0y	RECIRC LINE	460 / 238	39.1	33.5	0.12	0.127	705 / 374	809 / 432	906 / 485	1.44
06/10/09	06/10/09					33.7	0.18					
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
05/21/21	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	178	0
11/29/16	2	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	180	0
03/18/13	2	0	0	0	2	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	122	0
06/10/09	4	0	0	0	17	0	1	0	0	0	9	1					0			0	0	0	157	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

11/29/16	Sample shows no issues, continue with use and resample at next scheduled interval
03/18/13	Even though the Acid Number (AN) is relatively low, the flash point and GCD 90% temperature being this much higher than fresh oil probably indicate that the oil contains oxidation products. In our opinion, considering the relatively small size of the system, a drain/flush/refill is advisable to enjoy many more years of trouble free operation. (GCD) 90% Distillation Point is marginally high.
06/10/09	

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