

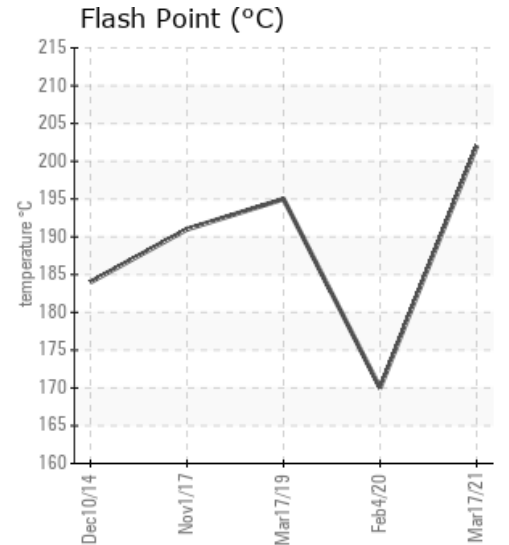
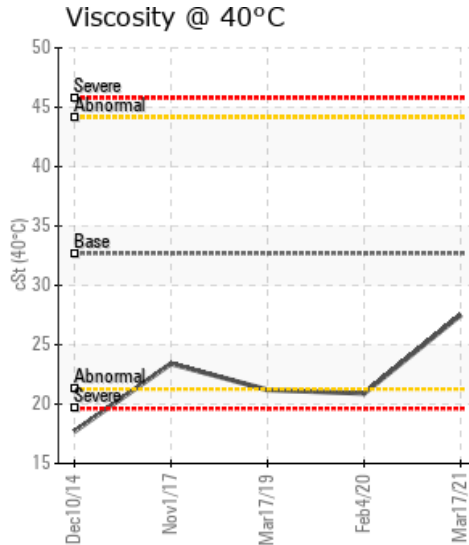
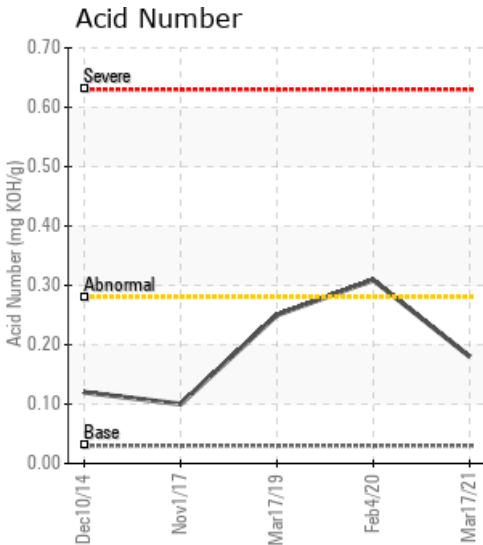
RF04 SPIN GROUP A

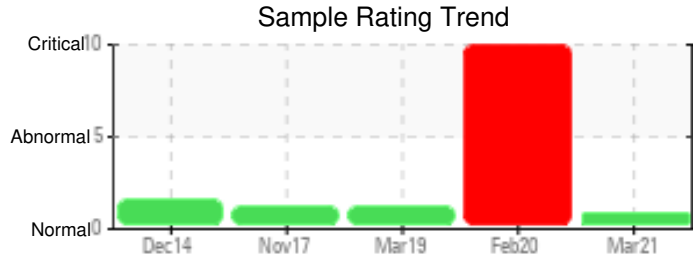
Customer: PTRHTF10057	System Information	Sample Information
PROPEX RINGGOLD PLANT 428 ROLLINS INDUSTRIAL BLVD RINGGOLD, GA 30736 USA Attn: MITCH HELTON Tel: (423)553-3723 E-Mail: MITCH.HELTON@PROPEXGLO BAL.COM	System Volume: 30 gal Bulk Operating Temp: 400F / 204C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02413412 Analyst: Jake Finn Sample Date: 03/17/21 Received Date: 04/06/21 Completed: 04/19/21 Jake Finn jake.finn@hollyfrontier.com

Recommendation: Sample has significantly improved since last testing in February of 2020. Iron levels dropped from 1046 ppm, flash point rose from 170 to 202°C, and pentane insolubles have decreased from 0.636 to 0.135. Fluid is otherwise suitable for continued use, please resubmit for testing in one year.

Comments: (GCD) 90% Distillation Point is abnormally high.

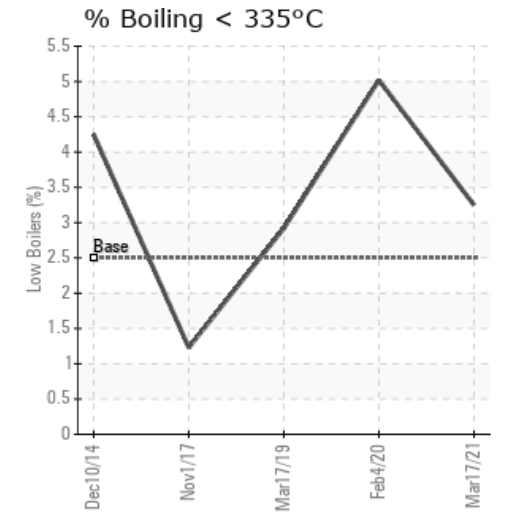
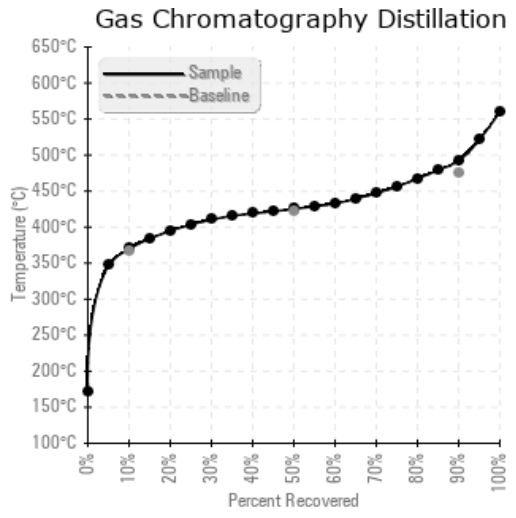
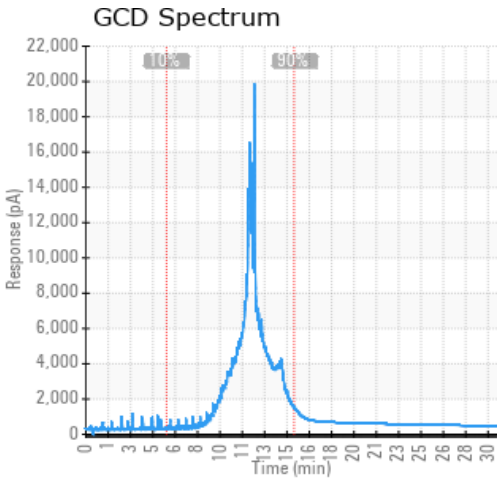
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/17/21	04/06/21	0.0h		396 / 202	67.7	27.5	0.18	0.135	698 / 370	797 / 425	918 / 492	3.25
02/04/20	02/21/20	0.0h		338 / 170	451.0	20.9	0.309	0.636	670 / 355	768 / 409	865 / 463	5.02
03/17/19	03/27/19	0.0h		383 / 195	18.9	21.2	0.250	0.067	707 / 375	798 / 426	896 / 480	2.92
11/01/17	11/13/17	0.0h		376 / 191	21.4	23.4	0.10	0.030	714 / 379	798 / 426	880 / 471	1.23
12/10/14	01/07/15	0.0h		363 / 184	128.9	17.7	0.12	0.073	703 / 373	806 / 430	899 / 482	4.25
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
03/17/21	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0
02/04/20	1046	0	0	1	1	0	0	0	0	0	3	0	2	0	0	0	11	0	1	0	2	0	160	3
03/17/19	168	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	68	0
11/01/17	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0
12/10/14	22	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	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	
02/04/20	Severe levels of iron detected. Acid number is abnormally high and water content has significantly risen. High pentane insolubles also indicate coking in system. Recommend the fluid is immediately filtered by using thorough kidney-loop filtration or replaced. Ensure that system filters are replaced after maintenance is performed. Iron ppm levels are severe. Pentane Insolubles levels are severely high. ppm Water contamination levels are marginally high. Acid Number (AN) is abnormally high. COC Flash Point is abnormally low. Visc @ 40°C is abnormally low. (GCD) 90% Distillation Point is marginally low. Light white metal and debris noted by lab.
03/17/19	Consider changing filters or kidney-loop filtering the fluid during any shutdown periods to remove iron wear particles and any 'light debris' as seen by the lab. Oil is otherwise suitable for continued use, please re-submit sample in 1 year. Iron levels have increased to 168 ppm. Viscosity has slightly decreased to 21.2 cSt @ 40°C. Flash point has improved since last sample. Please remember to include hours of use on oil and age of hot oil system when submitting samples for testing. Visc @ 40°C is
11/01/17	Oil suitable for continued use. Please re-submit sample in 1-year. Low Wear Metals; Low Contamination Levels; 21.4ppm water - low; very low acid numbers; 23.4 CsT @40oC Viscosity; COC Flash Point is marginally low (191 oC), but higher then it was during the last sample (3 years ago) by 7oC. Very Light Debris visible
12/10/14	Visc @ 40°C is severely low ~50% reduction. COC Flash Point is marginally low, yet in an acceptable range. Please verify the Heat Transfer oil being used as make up is Cafflo AF and not another oil. Send in next oil sample during the scheduled interval

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