

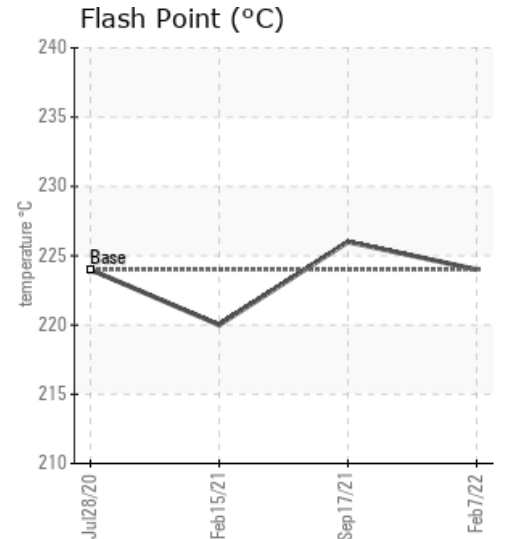
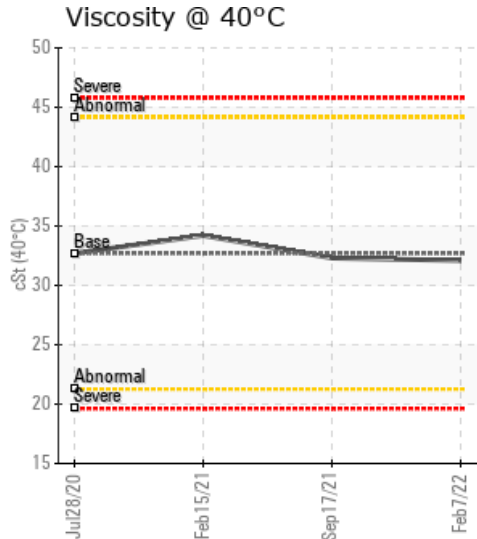
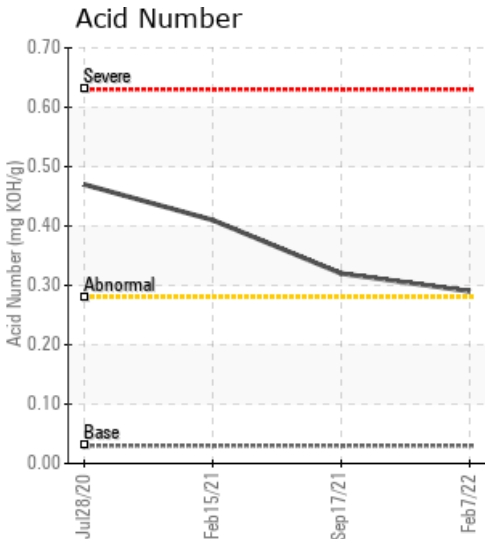
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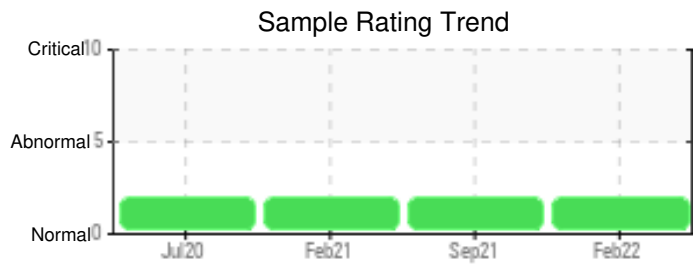
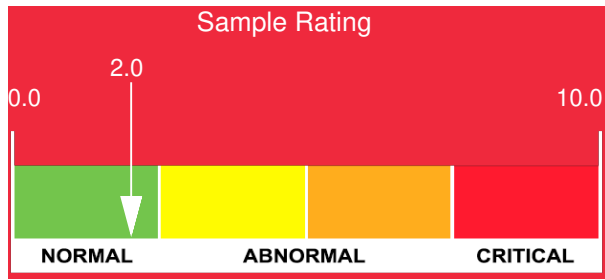
Customer: PTRHTF10059	System Information	Sample Information
CERTAINEED - SAINT GOBAIN 11519 US RT 250 N MILAN, OH 44846 USA Attn: DAVE BLAKELY Tel: (419)541-0843 E-Mail: dave.l.blakely@saint-gobain.com	System Volume: 8875 gal Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: JOHN ZINK	Lab No: 02473038 Analyst: Yvette Trzcinski Sample Date: 02/07/22 Received Date: 02/18/22 Completed: 02/23/22 Yvette Trzcinski yvette.trzcinski@hollyfrontier.com

Recommendation: Flash point, GCD boiling points, solids and viscosity as well as acid number have remained consistent from the last sample. In large systems when acid number is around 0.3 we recommend sweetening the system with new fluid. resample in 6 months

Comments: Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.

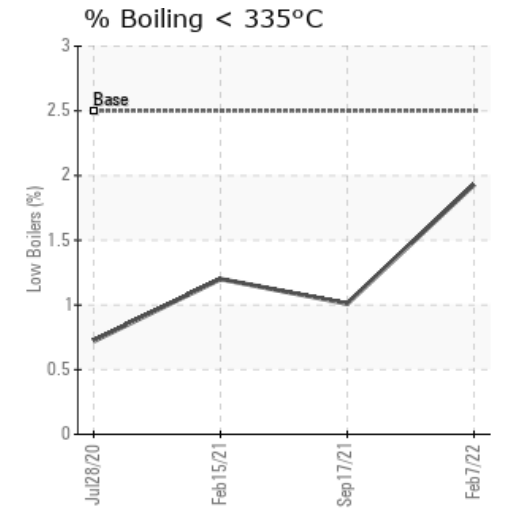
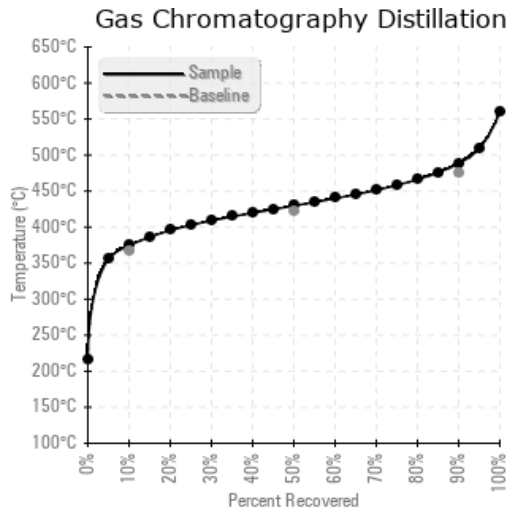
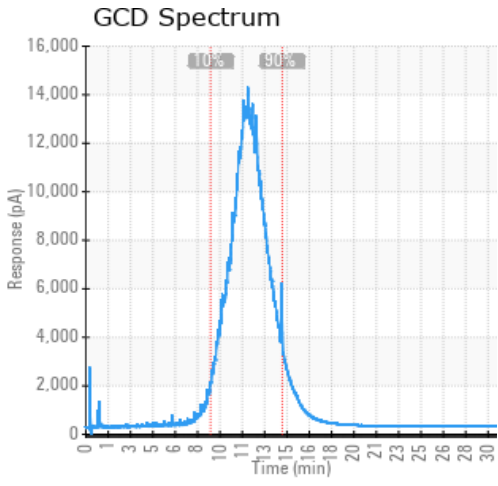
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/07/22	02/18/22	36.0m	sample port	435 / 224	14.3	32.1	0.29	0.130	706 / 374	805 / 430	911 / 489	1.93
09/17/21	10/05/21	36.0m	SAMPLE PORT	439 / 226	26.3	32.3	0.32	0.158	710 / 377	806 / 430	911 / 488	1.01
02/15/21	02/25/21	14.0m	Sample port	428 / 220	9.4	34.2	0.41	0.270	708 / 376	807 / 431	914 / 490	1.20
07/28/20	08/05/20	8.0m	NEW SYSTEM	435 / 224	28.1	32.7	0.47	0.093	714 / 379	808 / 431	913 / 489	0.72
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
02/07/22	53	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	238	2
09/17/21	44	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	246	2
02/15/21	56	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	240	3
07/28/20	13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	247	2
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	
09/17/21	Flash point and viscosity are within acceptable ranges, the acid number has improved from the last sample as well as the solids amount - looks like there was some make up added to the system. The GDC 90% is slightly high but is fairly consistent over the last 3 samples. Product is acceptable for continued use and resample in 6 - 12 months Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.
02/15/21	The total acid number is high but the acid number and GCD 90% and flash point have remained consistent from the last sample. The solids have more than doubled and there is a slight increase in viscosity which could be due to degradation in the system and contamination. Continue to monitor and resample in 6 months
07/28/20	This is a new system that was brought on line in December 2019 - filled with new Calflo AF heat transfer oil. The total acid number is very high for oil that has been in service for 7 - 8 months. The viscosity flash point are acceptable for service. the system was not flushed before filling with the fluid, please resample in 3-4 months to monitor the system Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.

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