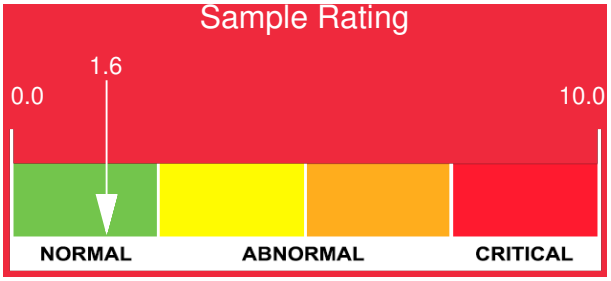
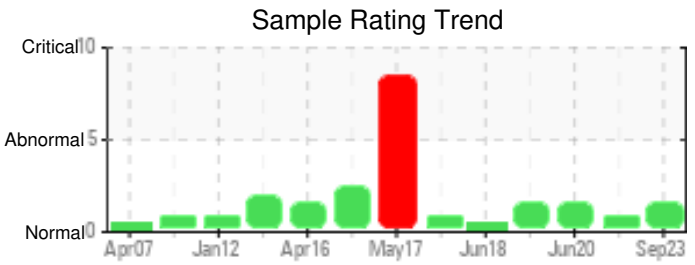




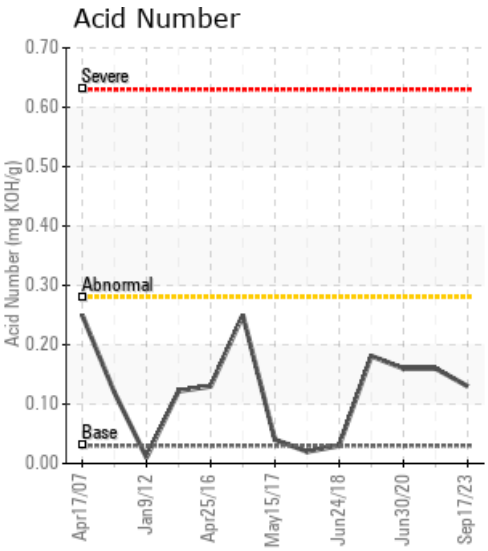
HOT OIL HEATER #3

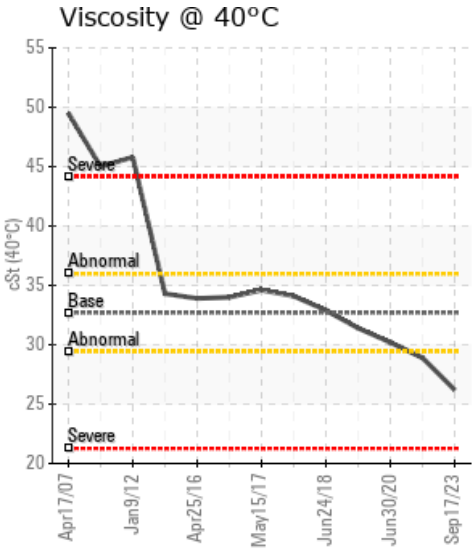
Customer: PTRHTF10070	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 6350 NW FRONT AVE PORTLAND, OR 97210 US Attn: John Hardy Tel: E-Mail: john.f.hardy@saint-gobain.com	System Volume: 1200 gal Bulk Operating Temp: 525F / 274C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02588039 Analyst: Ron LeBlanc Sample Date: 09/17/23 Received Date: 10/10/23 Completed: 10/17/23 Ron LeBlanc Ronald.LeBlancSr@HFSinclair.com

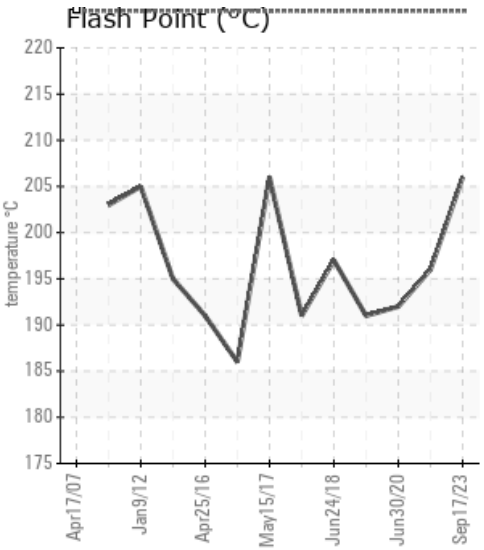
Recommendation: The sample appears good overall. The pentane insolubles are elevated indicating possible varnish/sludge forming. The GCD 90% distillation is elevated indicating varnish/sludge potential. The GCD 90% distillation has been elevated over the previous 3 samples as well. Re-sample in 3 months. Be sure to purge oil before capturing sample in container.

Comments: Pentane Insolubles levels are abnormal. (GCD) 90% Distillation Point is marginally high.

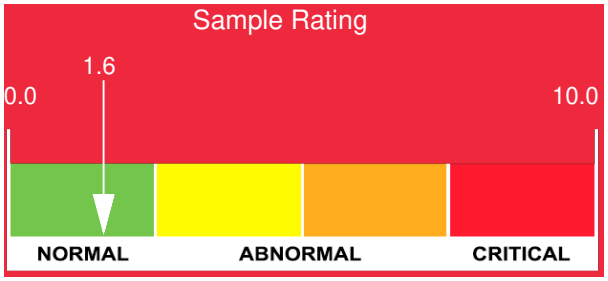
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/17/23	10/10/23	0.0m	TANK 3 HO PORT	403 / 206	27.4	26.2	0.13	0.496	672 / 355	796 / 424	911 / 489	6.46
01/27/22	02/15/22	12.0m		385 / 196	14.8	28.9	0.16	0.092	688 / 365	799 / 426	912 / 489	4.29
06/30/20	07/22/20	0.0m		378 / 192	15.7	30.2	0.16	0.169	690 / 366	801 / 427	914 / 490	4.12
05/28/19	06/10/19	0.0m		376 / 191	14.6	31.4	0.181	0.348	694 / 368	798 / 426	913 / 490	2.06
06/24/18	07/12/18	0.0m	SAMPLE PORT	387 / 197	14.7	32.9	0.03	0.356	698 / 370	779 / 415	890 / 477	0.00
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

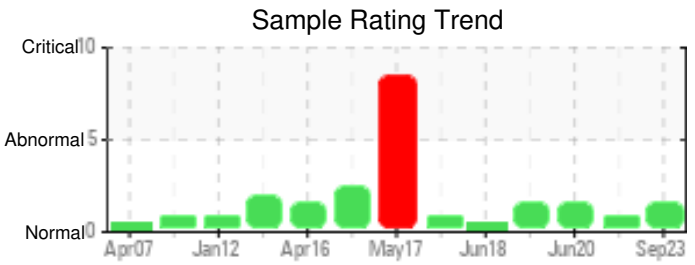






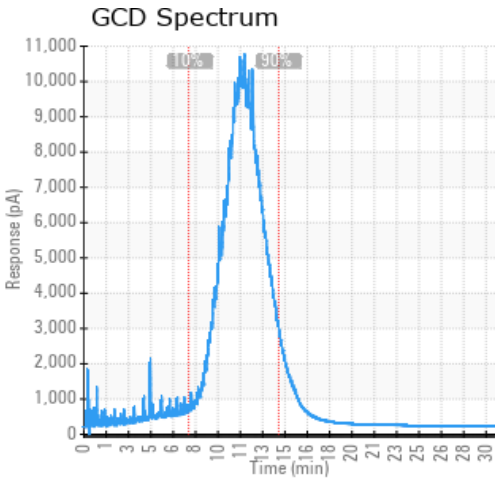
PETRO-CANADA LUBRICANTS

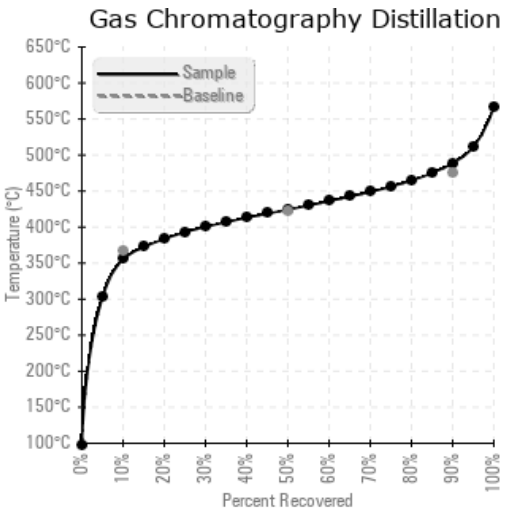


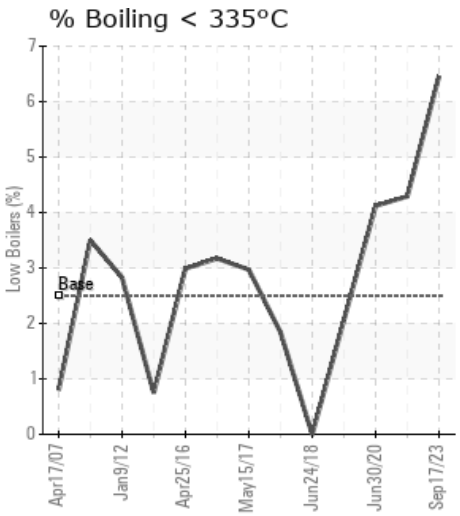


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/17/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
01/27/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0
06/30/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
05/28/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0
06/24/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	19	0
Baseline Data			0	0						0			0	0					0				270	

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







Historical Comments

01/27/22	This indicates components boiling above the final boiling point of the fresh fluid which can lead to deposits in the heat exchanger. (GCD) 90% Distillation Point is marginally high.
06/30/20	Virtually no change to the oil since the last sample. Flash point remains strong, no moisture or asphalt contamination. No action needed at this time. Keep up the sampling program and normal PMs around the system components. (GCD) 90% Distillation Point is abnormally high. COC Flash Point is marginally low.
05/28/19	The oil condition is fine. The acid number has risen a bit to 0.18 but it's still low. Normally this means the fluid is starting to oxidize. Just make sure the nitrogen blanket system on the expansion tank is operating well, because this is what prevents the oil from touching oxygen and oxidizing. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
06/24/18	Sample appears normal. Re-sample at regular interval.