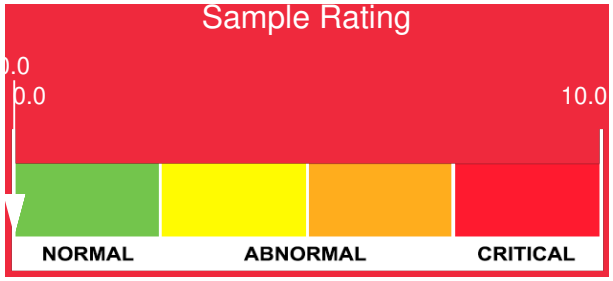
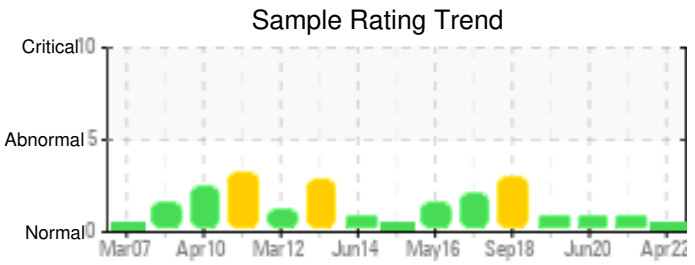




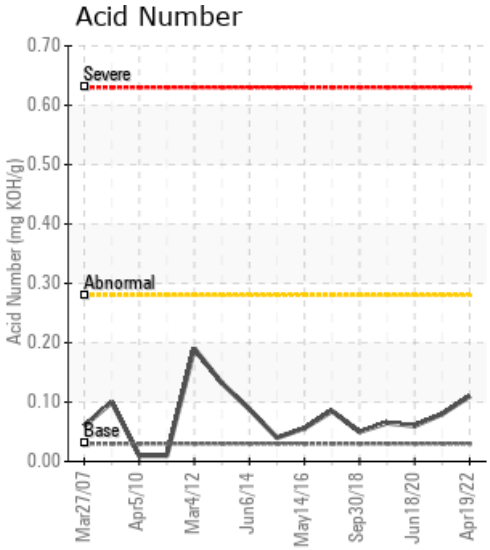
LINE 3 HOT OIL SYSTEM

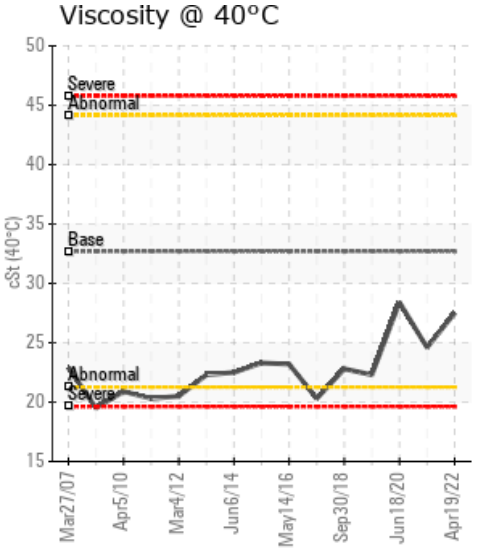
Customer: PTRHTF10069	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 3303 EAST 4TH AVENUE SHAKOPEE, MN 55379 USA Attn: Alex Hanley Tel: E-Mail: Alex.J.Hanley@saint-gobain.com	System Volume: 9450 gal Bulk Operating Temp: 474F / 246C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02487802 Analyst: Neil Buchanan Sample Date: 04/19/22 Received Date: 05/10/22 Completed: 05/12/22 Neil Buchanan neil.buchanan@hollyfrontier.com

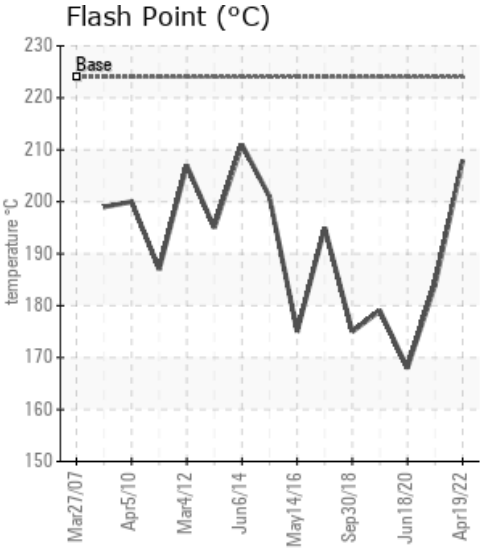
Recommendation: Sample looks good. Resample next interval to monitor.

Comments:

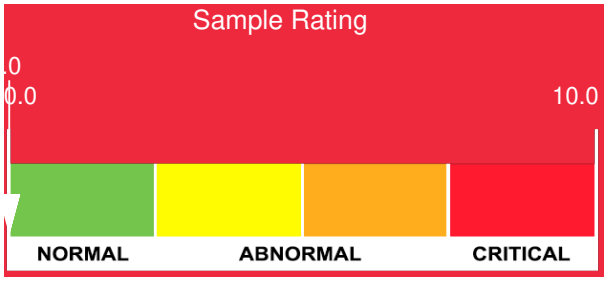
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/19/22	05/10/22	0.0y		406 / 208	11.6	27.5	0.11	0.028	682 / 361	790 / 421	900 / 482	4.45
04/29/21	05/11/21	15.0y		363 / 184	14.1	24.6	0.08	0.047	668 / 353	775 / 413	889 / 476	6.19
06/18/20	06/29/20	0.0y	main system	334 / 168	16.1	28.4	0.06	0.094	672 / 356	782 / 417	886 / 475	5.70
09/24/19	10/21/19	0.0y	MAIN SYSTEM FLOW	354 / 179	16.7	22.3	0.065	0.128	681 / 360	788 / 420	896 / 480	4.55
09/30/18	10/10/18	0.0y		347 / 175	10.0	22.8	0.050	0.031	671 / 355	766 / 408	862 / 461	4.41
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

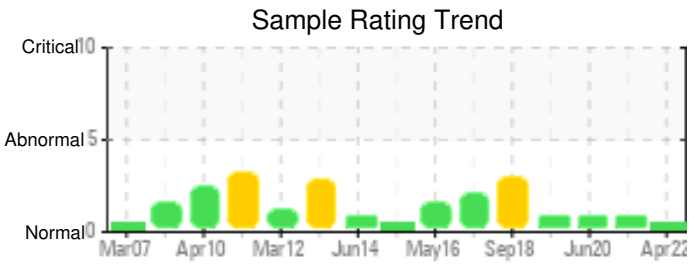






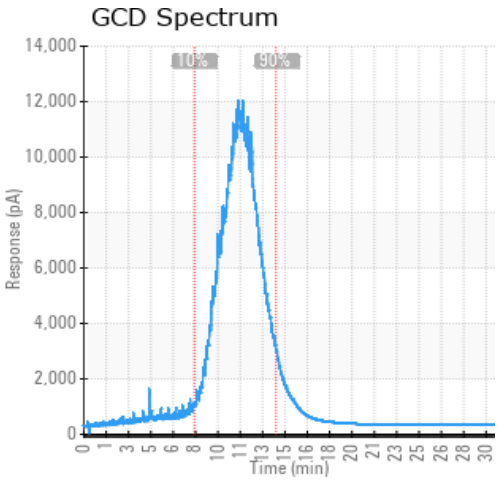
PETRO-CANADA LUBRICANTS

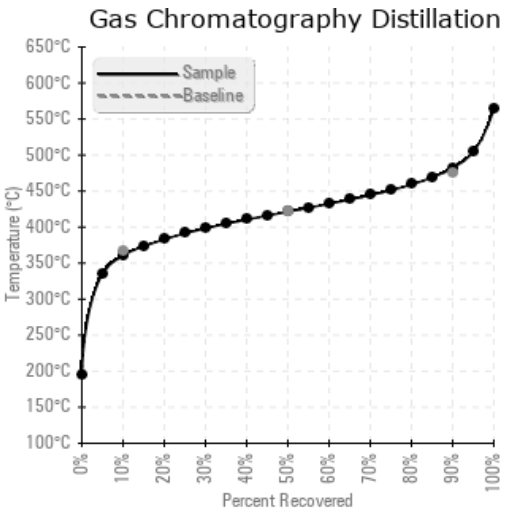


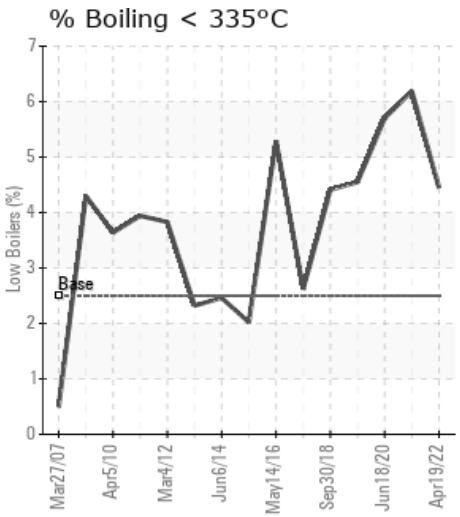


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
04/19/22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0
04/29/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0
06/18/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0
09/24/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
09/30/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	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

04/29/21	Sample results look good but flash point is marginally low. Resample next interval to monitor. COC Flash Point is marginally low.
06/18/20	Sample remains dry, free of contamination with a stable Acid Number. The trend of decreasing COC Flash Point and lower Initial Boiling Point and examination of the GCD graph suggests the continued formation of low boilers from thermal degradation. Continue venting to remove and resample next interval. COC Flash Point is abnormally low.
09/24/19	The oil is holding steady , although some properties like viscosity and flash point are flagged. This is likely due to the presence of Therminol 55 in this system when the computer compares to Calflo AF. Contamination by asphalt, water or other elements is insignificant or non-detectable. No actions needed at this time. Re-sample at next scheduled interval COC Flash Point is abnormally low.
09/30/18	This system has a history of having lower viscosity and what doesn't help is the flaws in the ASTM open cup flash point test is results jump up and down. So the viscosity is higher than on the last sample, yet the flash point is flagged for being lower. Overall you have managed this system well, just make sure the viscosity remains at least 23 cSt, but ideally we would like it to be a little higher. Since it seems to be more prone to thermal cracking, a slightly more frequent venting and replenishing might be needed on this system. COC Flash Point is abnormally low.