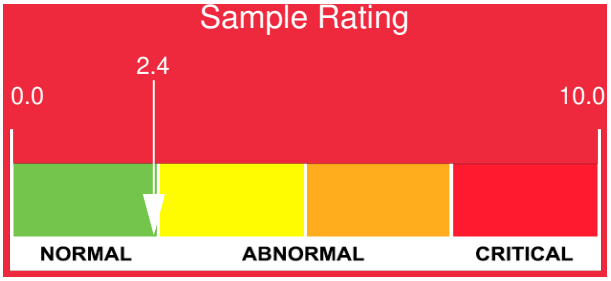
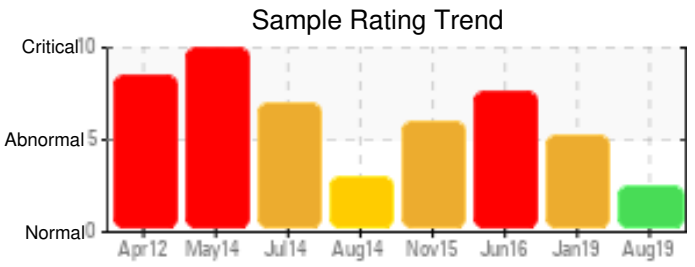




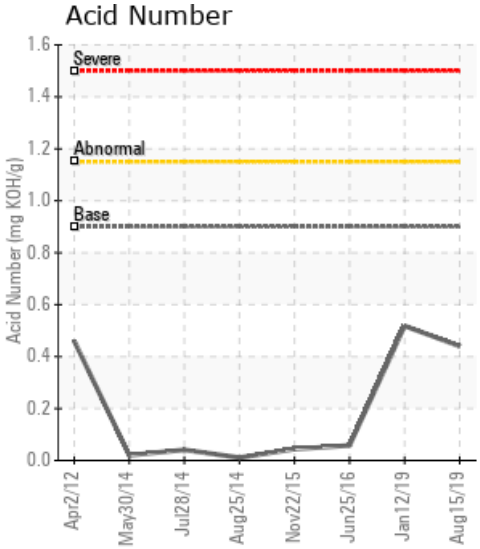
GFPT-FURTHER#3#4

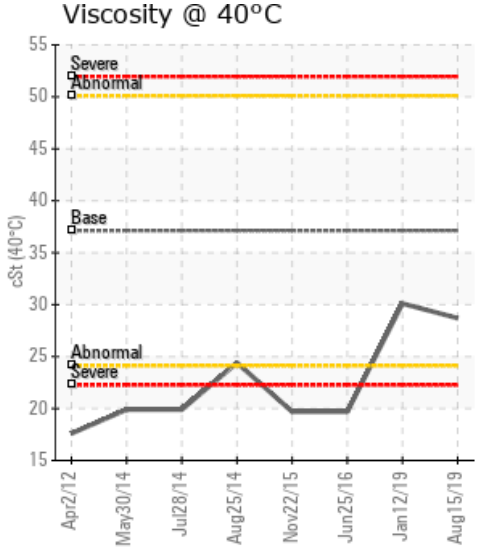
Customer: PTRHTF60010	System Information	Sample Information
SYNLUBE INTERNATIONAL CO LTD 76/1 MOO.7 THACHIN MUANG SAMUTSAKHON, 74000 THAILAND Attn: Kittisak Suthithanakom Tel: 6(681)850-1907 E-Mail: kittisak@synlube.co.th	System Volume: 14350 ltr Bulk Operating Temp: 554F / 290C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: HOVAL	Lab No: 02312789 Analyst: Philip Riley Sample Date: 08/15/19 Received Date: 10/04/19 Completed: 10/17/19

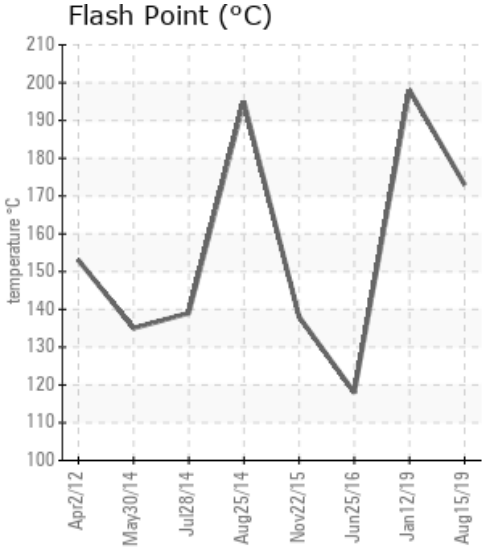
Recommendation: Historic results on this system show there have been much lower COC Flash Pt values, however, we cannot afford to work to these levels. Attempt to vent the system if safe to do so and remove light molecules to recover the flash point. If not please take a sample in 3 months to closely monitor and potentially look towards scheduling a change

Comments: COC Flash Point is severely low. (GCD) 90% Distillation Point is abnormally high.

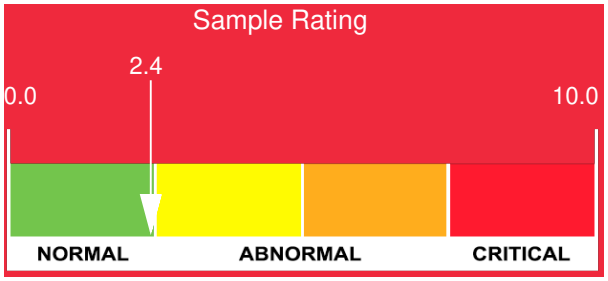
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
08/15/19	10/04/19	16m	SUPPLY RETURN	343 / 173	10.4	28.7	0.440	0.055	717 / 381	828 / 442	920 / 493	3.19
01/12/19	03/05/19	8m	SUPPLY RETURN	388 / 198	7.6	30.1	0.518	0.041	687 / 364	798 / 426	891 / 477	4.44
06/25/16	07/11/16	6m		244 / 118	13.3	19.7	0.058	0.057	600 / 316	762 / 406	944 / 507	13.48
11/22/15	11/30/15	52m		280 / 138	2107.3	19.7	0.044	0.137	587 / 308	753 / 401	919 / 493	15.15
08/25/14	08/28/14	52m	SUPPLY/RETURN	383 / 195	1.6	24.4	0.011	0.091	632 / 333	766 / 408	953 / 511	9.92
07/28/14	08/05/14	51m	SUPPLY	282 / 139	11.3	19.9	0.041	0.051	626 / 330	767 / 408	949 / 510	10.59
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5

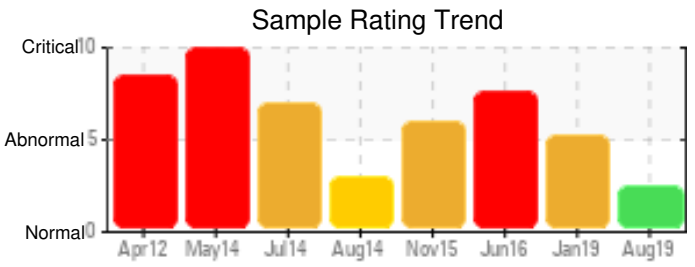






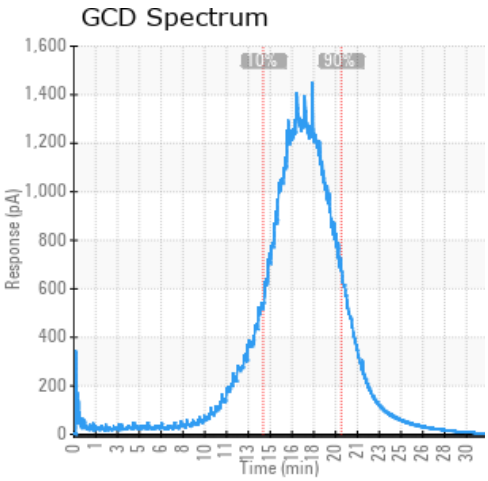
PETRO-CANADA LUBRICANTS

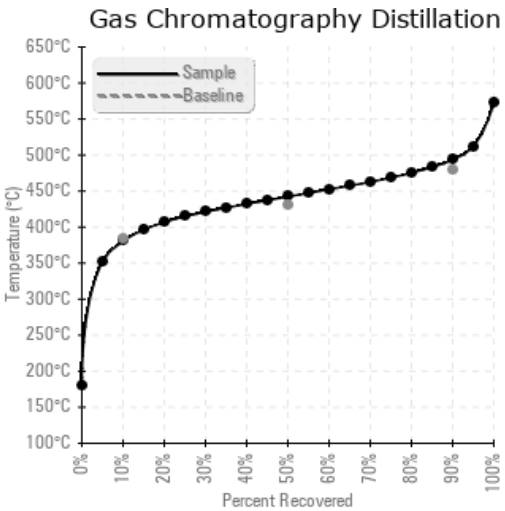


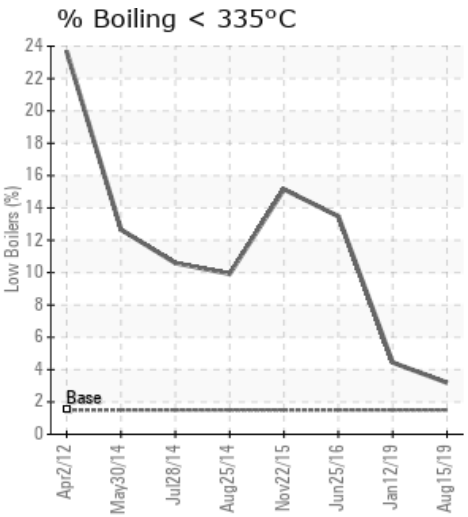


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
08/15/19	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0
01/12/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0
06/25/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/22/15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08/25/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
07/28/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				230	

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







Historical Comments

01/12/19	The current fluid has normal viscosity and flash point. The solid content and the water or dirt contaminants are all low. The fluid might experiences a mild oxidation due to the high bulk working temperature. Please make sure the expansion tank is sealed by the nitrogen blanket and the tank temperature is less than 65C during the normal operation. Please continue to run the oil and take one sample in 12 months to monitor the conditions.
06/25/16	(GCD) % < 335°C is severely high. COC Flash Point is severely low. The current fluid has been severely thermal cracked. The high content of light boiler causes the low flash point. The system venting is required, otherwise the oil change is required immediately.
11/22/15	The fluid experieced severe thermal cracking, there are a lot of light end of the fluid accumulated in the system. GCD%<335C data reading is severely high, the flash point is severely low. Please do the effective system venting as soon as possible. If the venting cannot be done, please change the fluid. Water contamination levels are severely high. (GCD) 90% Distillation Point is severely high. COC Flash Point is very low.
08/25/14	The current fluid has improvement in terms of the viscosity, flash point, and GCD@10%. However, the GCD@90% is still much higher than the new fluid. Please take one sample in 3 months to monitor. (GCD) 90% Distillation Point is severely high.
07/28/14	The current Therminol XP (182 C flash point, 315C Max bulk temperature in new fluid) has a slight improvement after 615 liters new fluid top up. However, there are still a lot of thermal cracked light end in the system, and the low flash point definately brings the safety concerns. Please double the current venting time if it is possible. Draw one sample to monitor the conditions in one month. (GCD) 90% Distillation Point is severely high. COC Flash Point is abnormally low.

