

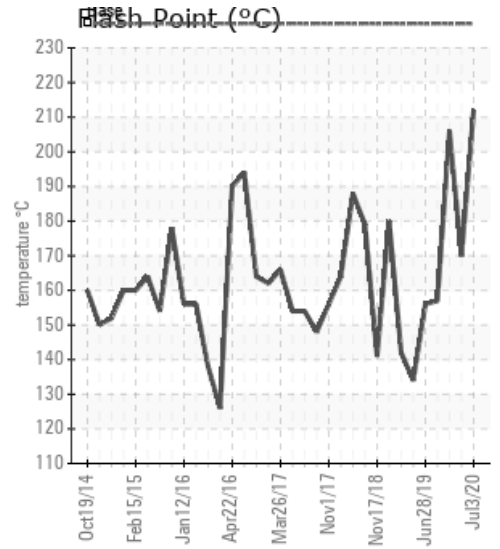
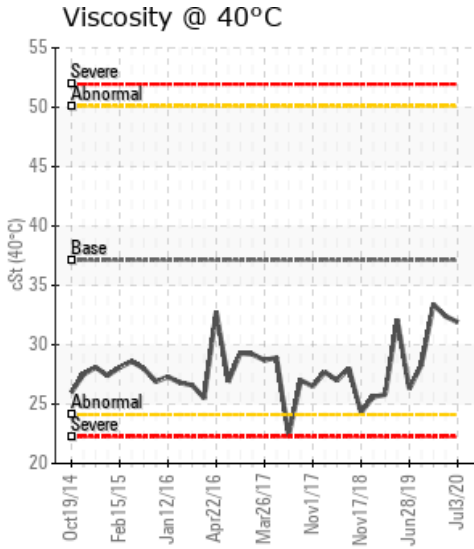
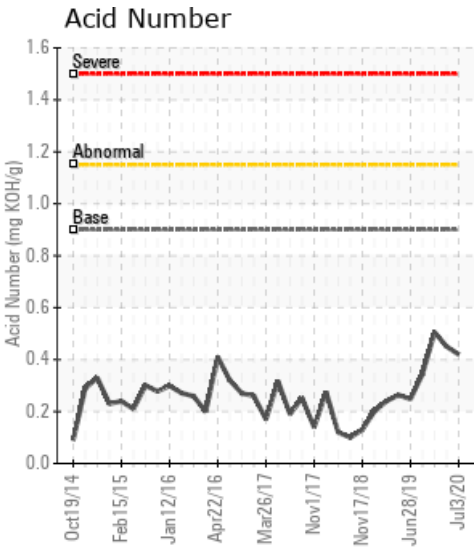
[THAILAND] CARGILL RETURN

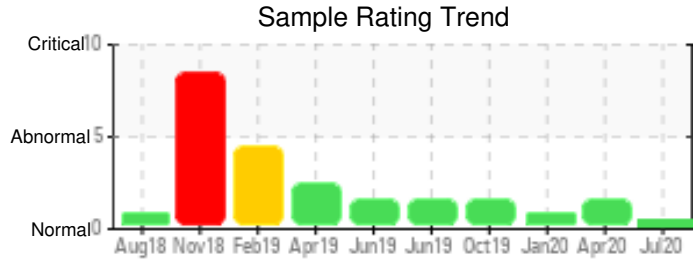
Customer: PTRHTF60010	System Information	Sample Information
SYNLUBE INTERNATIONAL CO LTD 76/1 MOO.7 THACHIN MUANG SAMUTSAKHON, 74000 THAILAND Attn: CHERNPORN CHOBKUI Tel: 034421290 E-Mail: chernporn@synlube.co.th	System Volume: 11275 ltr Bulk Operating Temp: 554F / 290C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: WANSON	Lab No: 02364502 Analyst: Philip Riley Sample Date: 07/03/20 Received Date: 07/14/20 Completed: 07/17/20 Philip Riley philip.riley@petrocanadalsp.com

Recommendation: All parameters within acceptable limits. Fluid fit for further use. Please re-sample at normal frequency

Comments:

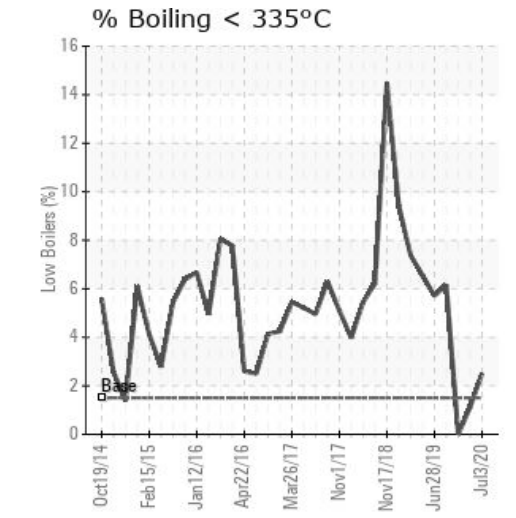
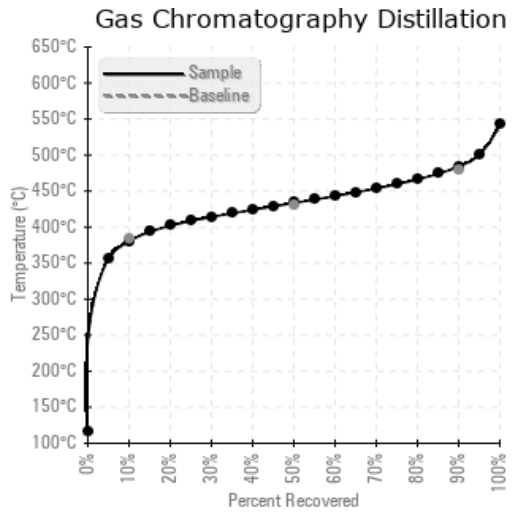
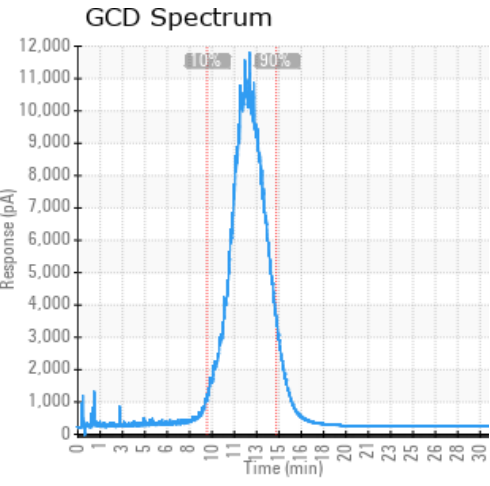
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/03/20	07/14/20	6m		414 / 212	11.8	31.9	0.42	0.034	717 / 380	812 / 434	903 / 484	2.51
04/06/20	04/14/20	3m	SUPPLY AND RETURN	338 / 170	15.6	32.4	0.45	0.090	725 / 385	814 / 434	902 / 484	1.12
01/14/20	01/30/20	10m		403 / 206	2.2	33.4	0.505	0.058	725 / 385	807 / 431	896 / 480	0.00
10/12/19	10/25/19	42m	SUPPLY/RETURN	315 / 157	9.6	28.3	0.345	0.117	672 / 356	791 / 422	885 / 474	6.15
06/28/19	07/11/19	38m		313 / 156	28.1	26.3	0.248	0.027	677 / 359	794 / 423	885 / 474	5.71
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5





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	
07/03/20	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	
04/06/20	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0
01/14/20	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0
10/12/19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0
06/28/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	1
Baseline Data			0	0						0			0	0				0	0					230	

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



Historical Comments

04/06/20	All parameters remain in specification except for the low COC Flash Pt. This has seen lower values in the past but it is important to safely vent the system to remove the low boiling point molecules. Recommend to re-sample in 3 months to check the system after venting. COC Flash Point is severely low.
01/14/20	Flash point (COC) slightly low but within reasonable boundaries. If safe venting can take place to recover then look towards this after next analysis if it continues to reduce but currently fit for further use. All other parameters meet spec. Please re-sample at normal interval COC Flash Point is marginally low.
10/12/19	COC very low and evidence of thermal cracking of the oil, with a history in this application. Viscosity has recovered slightly from last sample and COC Flash Pt is almost identical. Please look to further vent this system (if safe) and see if flash point can be recovered also. Distillation properties in line with expectation. Please sample following venting and check on recovery of the oil COC Flash Point is severely low.
06/28/19	The current fluid has normal distillation points. The acid number and solid content are all normal. The current fluid is suitable for operation. Please do the system venting as one of the routine maintenance activities to release the low boiler. Please take one sample in 6 months to monitor the conditions.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.