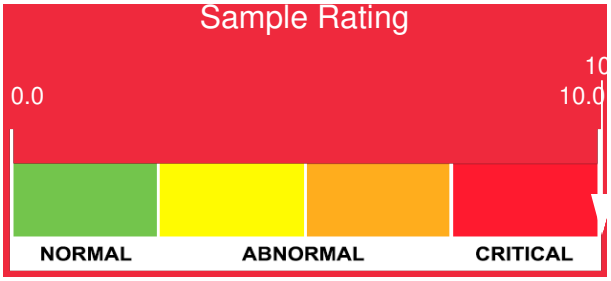
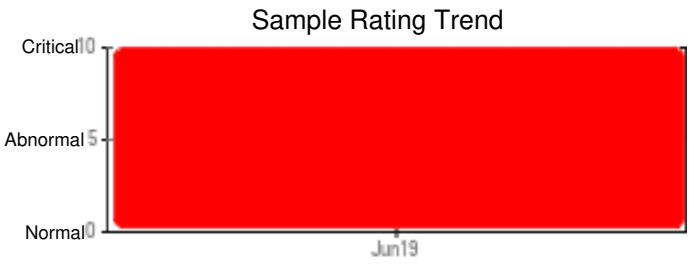




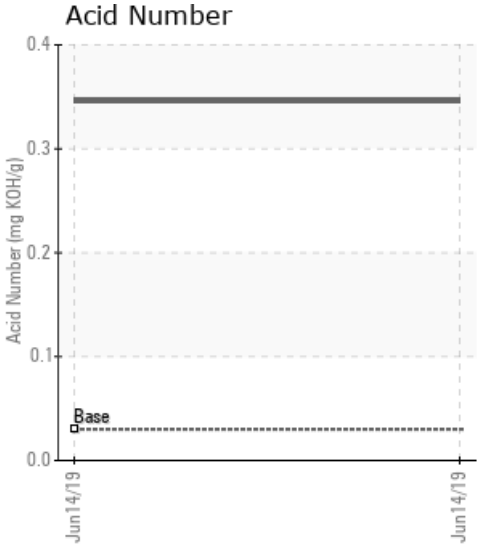
[ACTON] LINE 5 1909

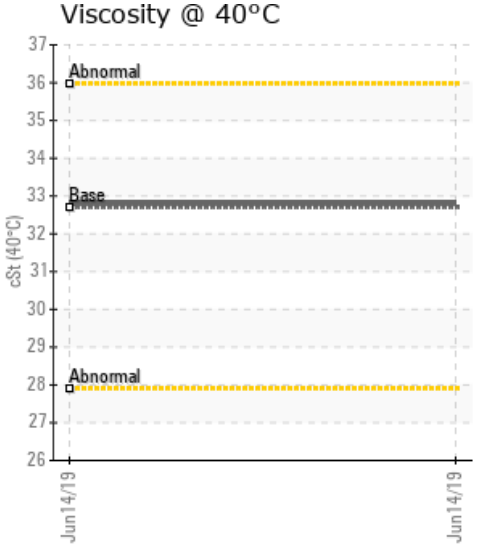
Customer: PTRHTF30129	System Information	Sample Information
KP Products 323 Main Street North Acton, ON L7J 2L9 Canada Attn: Dan Smith Tel: (226)820-4002 E-Mail: dan.smith@kpproducts.com	System Volume: 25 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: EXTRUSION PROCESS	Lab No: 02292073 Analyst: Lynn Billings Sample Date: 06/14/19 Received Date: 06/19/19 Completed: 06/24/19

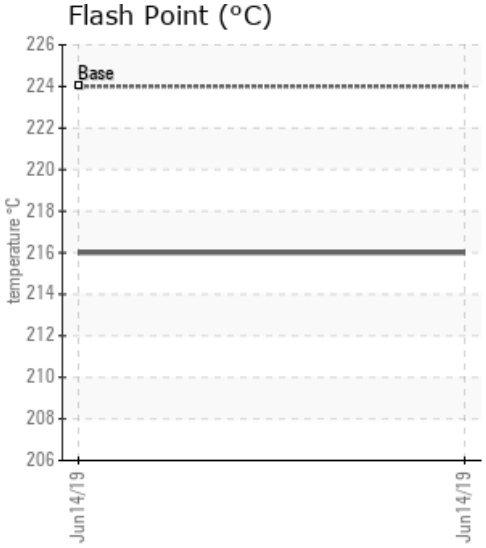
Recommendation: In general, the fluid's distillation curve looks good and the pentane insoluble are okay at 0.281 (condemning limit is > 0.5). The used oil limit for acid number is > 0.5 and the result is currently at 0.346. Flash point and viscosity are fine.The main issue is contamination. There is high silicon level, which is probably from dirt or maybe when maintenance had been completed the system was not purged. The excess silicon is probably generating the wear (Iron 26 ppm). Also, there is some zinc in the system, which could be responsible for the sludge. Zinc is not a metal that is good for a heat transfer system because it can lead to sludge.Suggest to remove the fluid from the system and flush the system (twice). Add the required minimum amount of flush to recirculate the system. Then add new Calflo AF. We would also suggest you use a smaller micron filter than the 100 micron you are currently using so you can keep the system clean.

Comments: Iron ppm levels are severe. Silicon ppm levels are severely high. Acid Number (AN) is severely high.

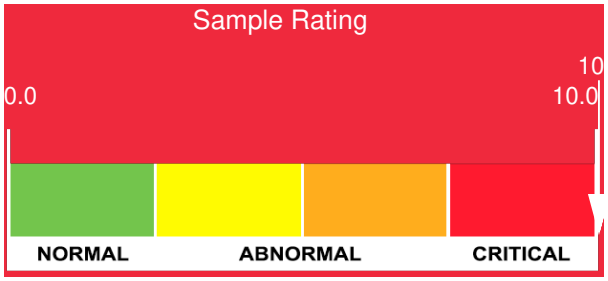
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/14/19	06/19/19	0y		421 / 216	5.1	32.8	0.346	0.281	702 / 372	794 / 423	899 / 482	0.00
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

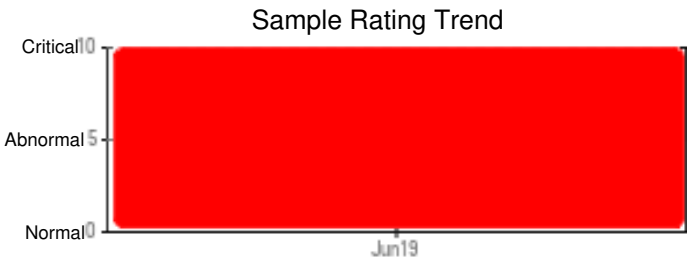






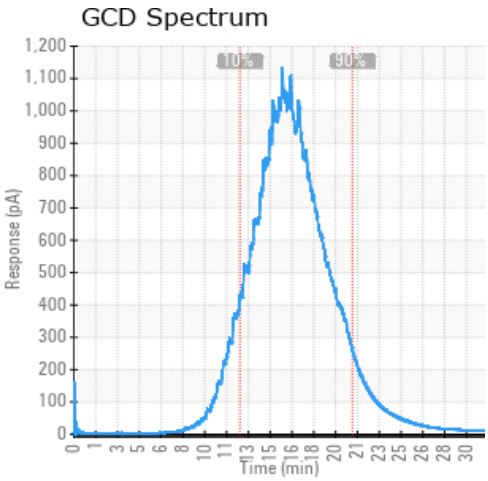
PETRO-CANADA LUBRICANTS

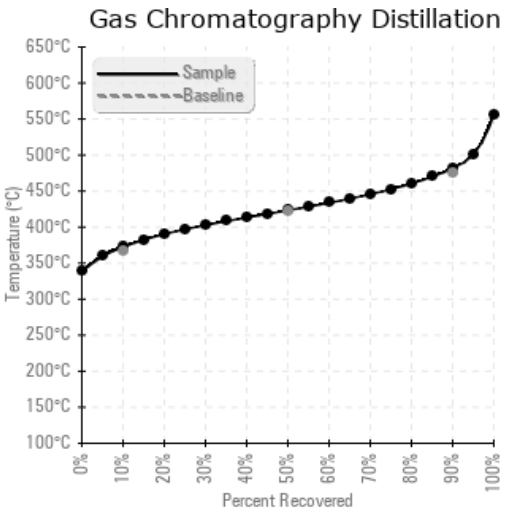


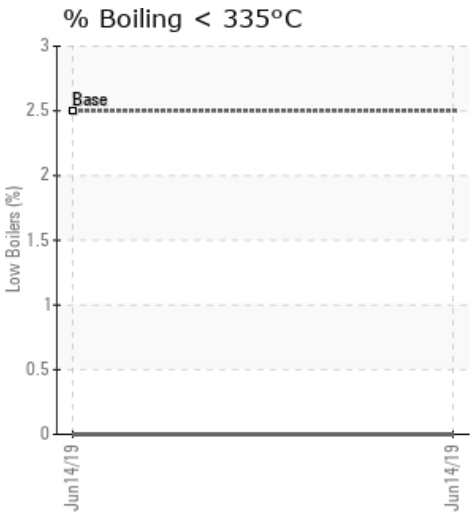


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
06/14/19	26	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	248	5
Baseline Data			0	0						0			0	0					0				270	

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







Historical Comments
