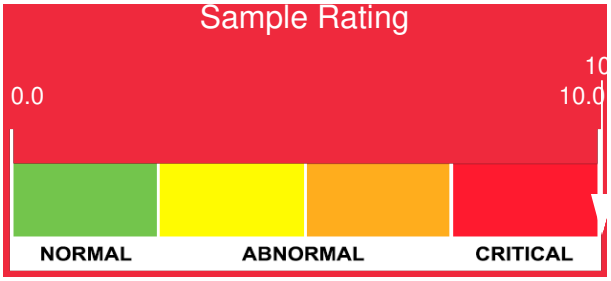
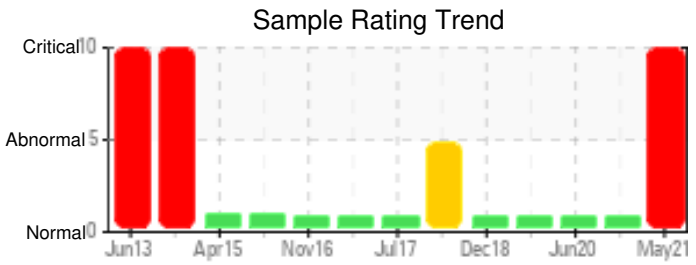




[TOURMALINE, KAKWA / 01-35-60-5-W6] H-720

Customer: PTRHTF20175

QUADRA CHEMICALS
7802 98 STREET
CLAIRMONT, AB T0H 0W0 Canada
Attn: Quadra Samples
Tel:
E-Mail: quadra_samples@quadra.ca

System Information

System Volume: 19600 ltr
Bulk Operating Temp: 338F / 170C
Heating Source:
Blanket:
Fluid: PETRO CANADA PETRO-THERM
Make: HEATECH

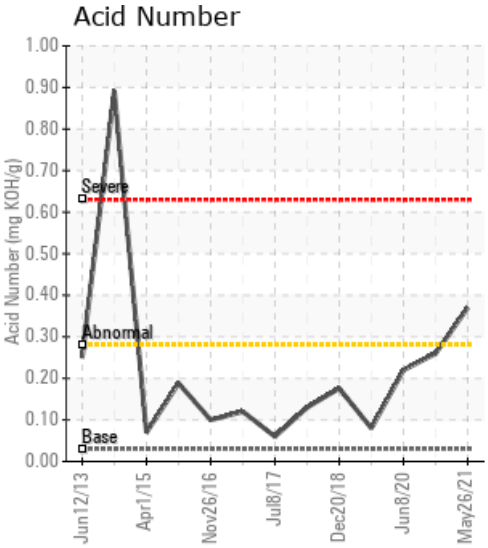
Sample Information

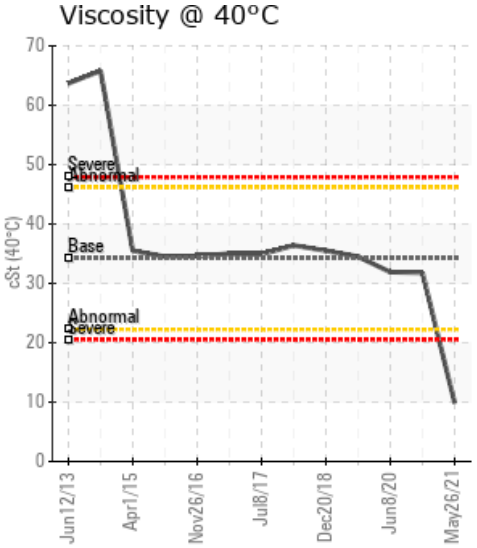
Lab No: 02425924
Analyst: Clinton Buhler
Sample Date: 05/26/21
Received Date: 06/08/21
Completed: 06/14/21
Clinton Buhler
Clinton.Buhler@HFSinclair.com

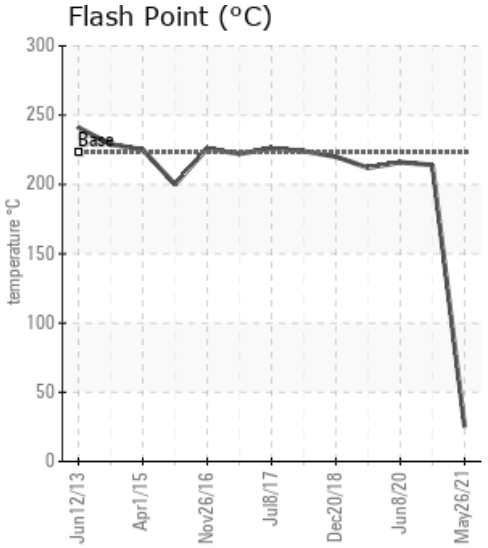
Recommendation: *** EXTREMELY LOW FLASH POINT! ***The fluid's flash point is at 25C; that, and along with a viscosity of 9.9, 10% distillation point of 87.7C amongst >4,000 ppm of water and an Acid Number of 0.37, indicate the fluid is in a very compromised state. The fluid's flash point is a safety concern. Continue operation at your own risk. An immediate re-sample needs to be taken and rushed to Wear Check in Burlington, Ontario to confirm these results.Please ensure that the sample is taken from a hot and turbulent zone (pump discharge is best) and that it is purged thoroughly before the sample is taken.Please contact Petro-Canada Lubricants Technical Services to discuss

Comments: Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. (GCD) % < 335°C is severely high. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. Visc @ 40°C is severely low. Acid Number (AN) is abnormally high.

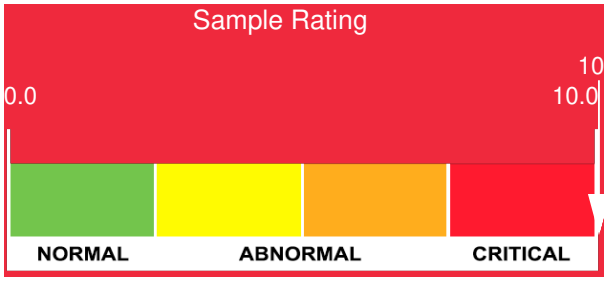
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/26/21	06/08/21	7.0y	off expansion tank	77 / 25	4292.4	9.9	0.37	0.089	190 / 88	774 / 412	887 / 475	22.40
12/02/20	12/18/20	7.0y	Heater return	417 / 214	58.6	31.8	0.26	0.527	710 / 377	810 / 432	906 / 486	2.39
06/08/20	06/22/20	3.0y	PUMP DISCHARGE	421 / 216	13.2	31.9	0.22	0.421	710 / 377	811 / 433	906 / 486	2.45
05/30/19	06/06/19	0.0y		414 / 212	14.1	34.5	0.080	0.427	706 / 374	807 / 431	909 / 487	1.49
12/20/18	01/21/19	54.0y	DISCHARGE	428 / 220	145.1	35.5	0.176	0.433	692 / 367	789 / 420	883 / 473	1.81
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

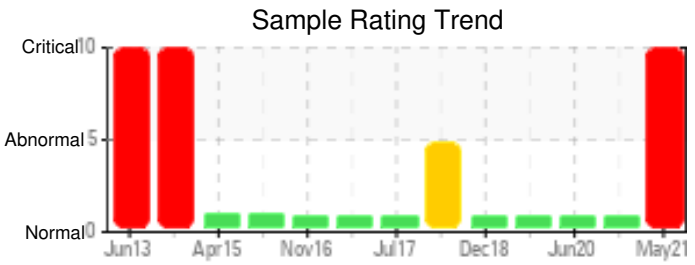






PETRO-CANADA LUBRICANTS

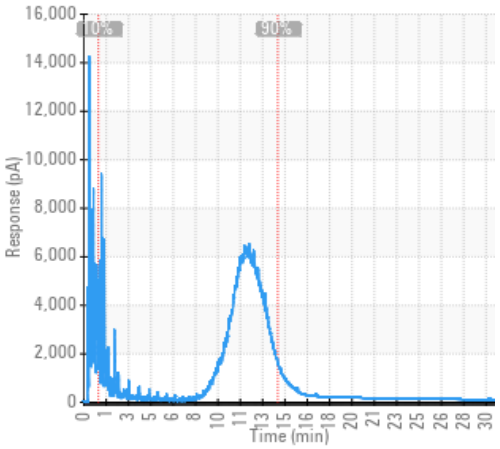




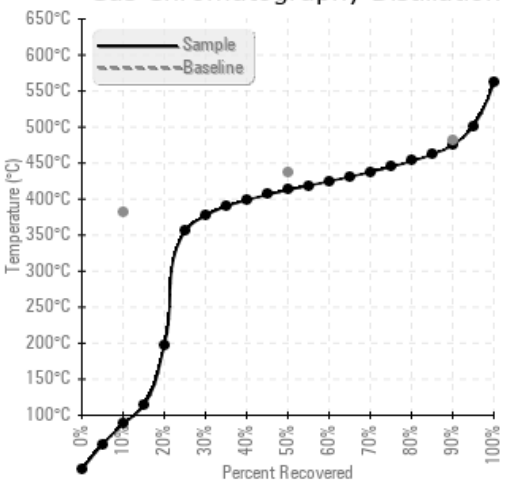
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/26/21	15	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12/02/20	95	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	2	0	0	0	1	0	0	1
06/08/20	38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
05/30/19	40	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0
12/20/18	73	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	1	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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

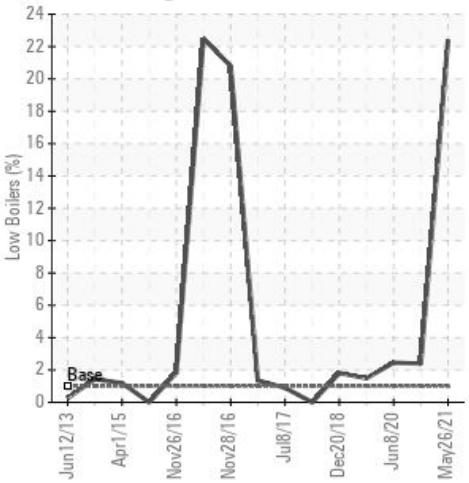
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

12/02/20	Fluid remains in very good condition overall. Iron content is rather high which suggests corrosion is or has been taking place. The solids content is quite high - the system could benefit from a slipstream filter to slowly reduce the solids content.
06/08/20	The fluid is in a good condition and suitable for further use. Venting of low boiler vapor to atmosphere on a regular basis is recommended to maintain the vapor % <335C close to that of the fresh oil. Please re-sample in 12 months.
05/30/19	Sample results indicate that the fluid is suitable for continued service.Solids content of 0.427% comparable to last analysis which is positive in that it hasn't increased, but solids content still undesirable. Plans for fluid filtration would be recommended if solids content increases much beyond 0.5%.Continue regular venting of fluid to remove low boiling vapors.Please re-sample in 6-12 months
12/20/18	Sample results indicate that the fluid is suitable for continued service. % boil-off has increased since last sample which can indicate some thermal degradation. Regular venting of low boiling vapors from the expansion tank is recommended. Solids continues to be present. Please ensure blanket gas is operational. Please re-sample in 6 months