

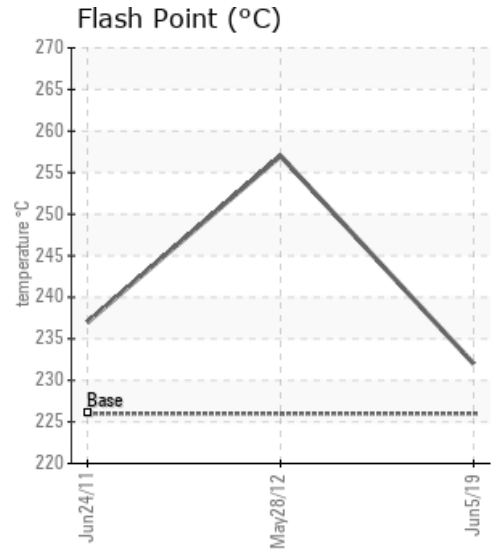
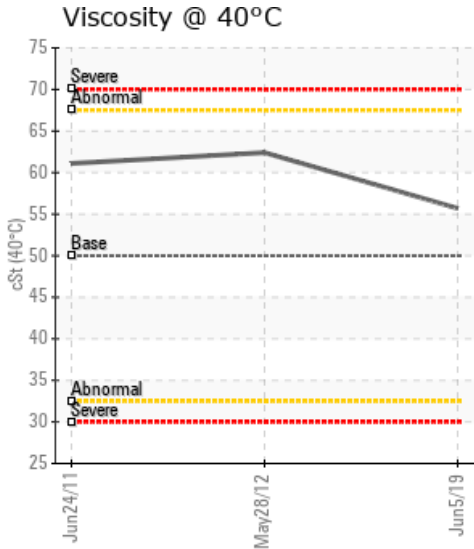
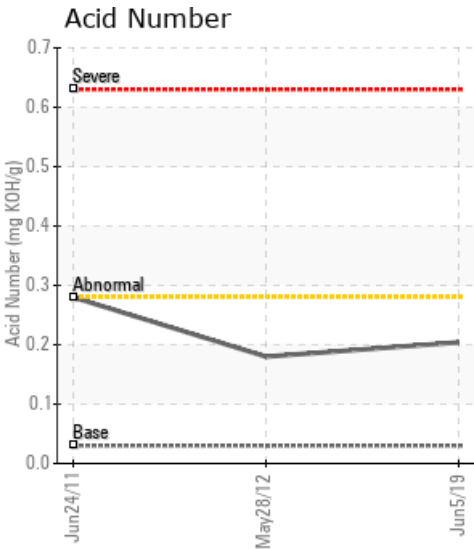
[2-11-60-04W6M] PEYTO KAKWA

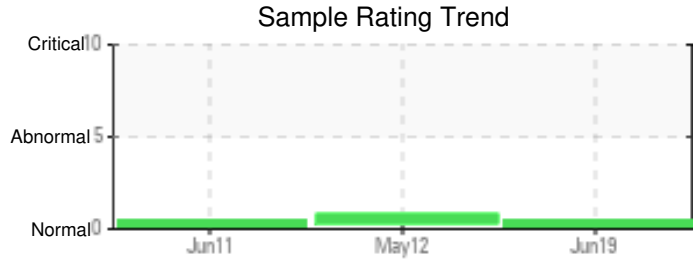
Customer: PTRHTF20046	System Information	Sample Information
QUADRA CHEMICALS 12925 146TH STREET EDMONTON, AB T5L 2H6 CANADA Attn: Quadra Samples Tel: E-Mail: quadra_samples@quadra.ca	System Volume: 13340 ltr Bulk Operating Temp: 752F / 400C Heating Source: Blanket: Fluid: SUNOCO SUN HEAT TRANSFER 21 PD Make: ALCO	Lab No: 02292078 Analyst: Terry Veenstra Sample Date: 06/05/19 Received Date: 06/19/19 Completed: 06/24/19

Recommendation: This sample of Sunoco Heat Transfer 21 still looks to be in good condition and is OK for continued use. Flash point is normal and Pentane insolubles are low. Resample in 6 months.

Comments:

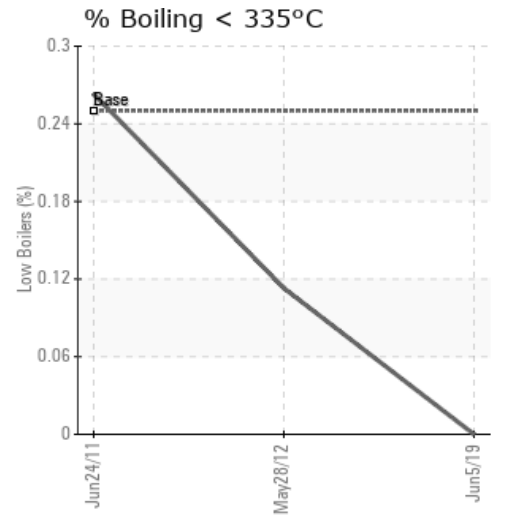
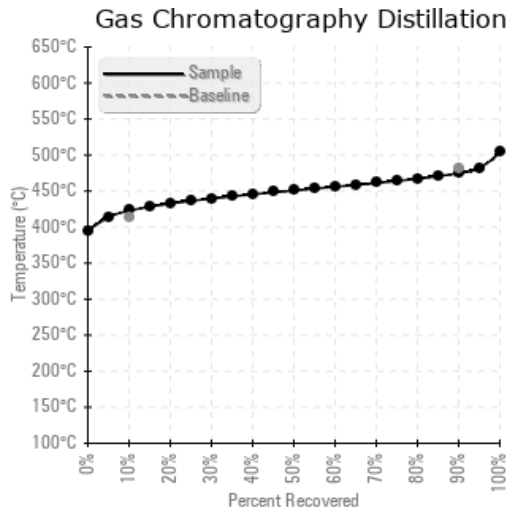
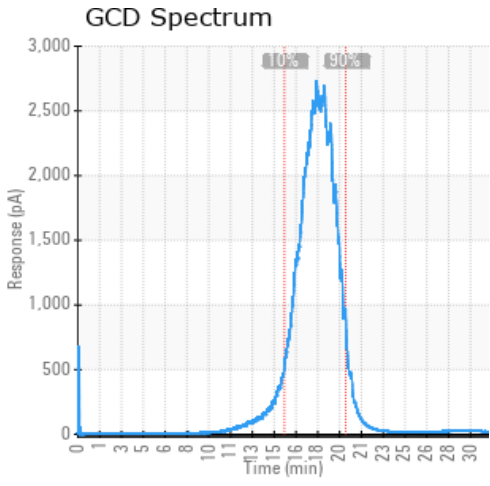
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/05/19	06/19/19	0h	OIL RETURN	450 / 232	34.8	55.7	0.204	0.184	793 / 423	843 / 451	887 / 475	0.00
05/28/12	06/25/12		HOT OIL PUMP DISCH L	495 / 257	55	62.4	0.18		799 / 426	844 / 451	887 / 475	0.113
06/24/11	06/27/11			459 / 237	41	61.1	0.28	0.054	800 / 427	848 / 453	892 / 478	0.263
Baseline Data				439 / 226		50.0	0.03		777 / 414		900 / 482	0.25





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
06/05/19	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/28/12	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15	1
06/24/11	50	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0		0	0					0				0		

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



Historical Comments	
05/28/12	The fluid is not in bad shape but our Petro-Therm would increase the heat transfer performance due to its lower viscosity. Better (more rapid) heat transfer means more heat carried away, so higher productivity and/or could run the boiler a few degrees lower to do the same job, which saves on gas. Petro-Therm can handle up to 316C in closed systems so 185C is a walk in the park. Its flash point is >220C so even above the operating temp.
06/24/11	

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