

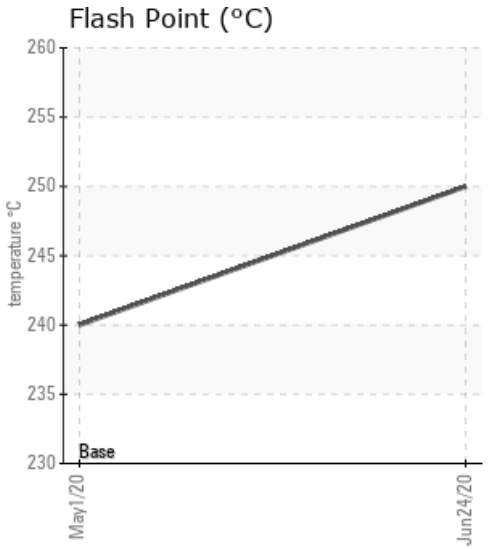
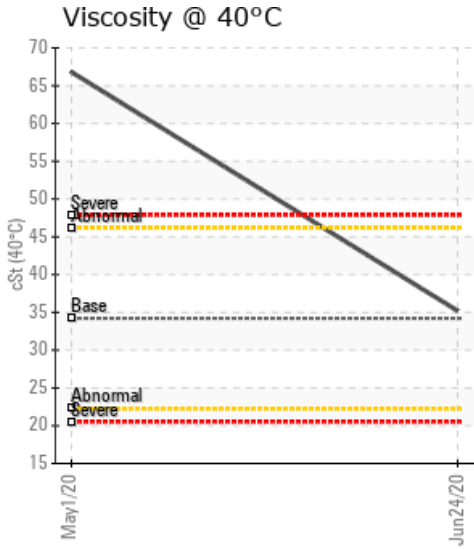
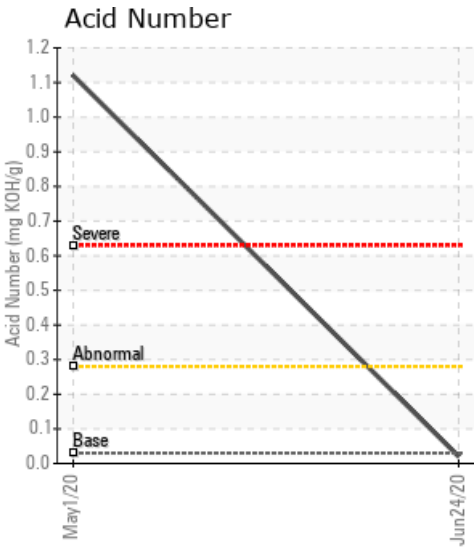
# [ASPEN LEAF ENERGY / 10-22-50-26W4] HEAT TRANSFER

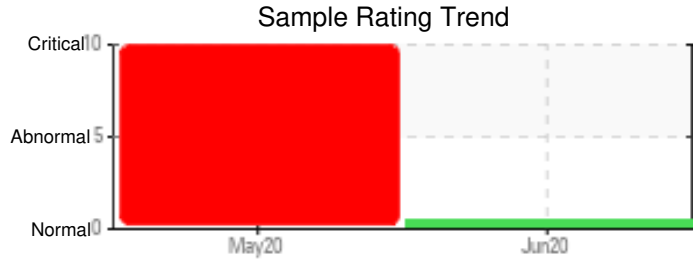
Customer: PTRHTF20174	System Information	Sample Information
Quadra Chemicals 700 4th Ave S.W Suite 470 Calgary, AB T2P 3J4 Canada Attn: Quadra Samples Tel: E-Mail: quadra_samples@quadra.ca	System Volume: 12069 ltr Bulk Operating Temp: 376F / 191C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02364498 Analyst: Terry Veenstra Sample Date: 06/24/20 Received Date: 07/14/20 Completed: 07/16/20 Terry Veenstra terry.veenstra@petrocanadalsp.com

Recommendation: This sample is in good condition and OK for continued use. Pentane Insolubles are low and flash is high, GCD is in the range of close to new oil. Resample in 6 months

Comments:

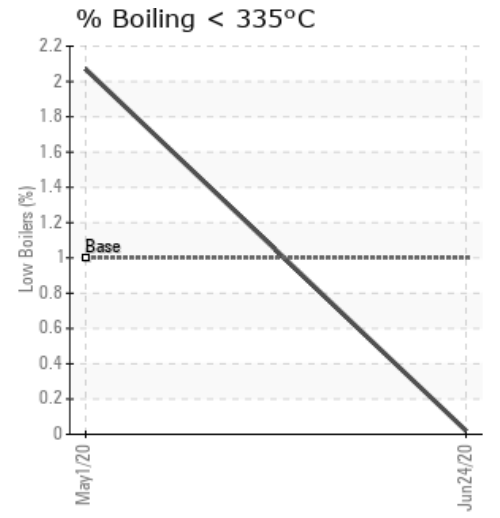
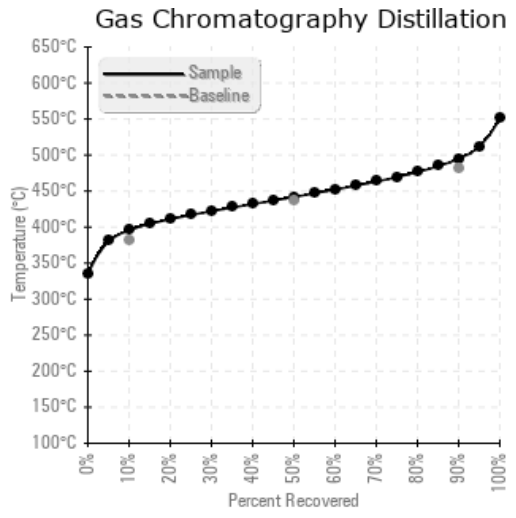
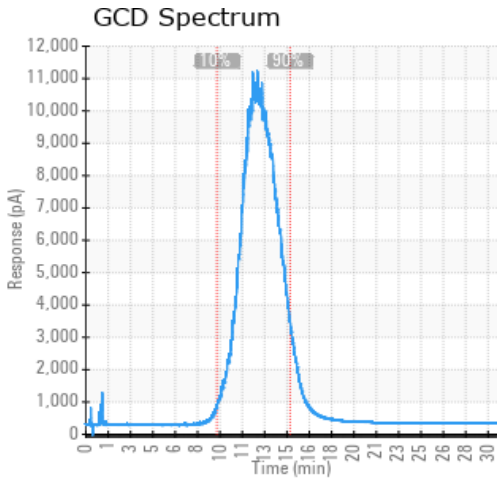
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/24/20	07/14/20	0h		482 / 250	201.9	35.2	0.02	0.049	744 / 396	827 / 442	923 / 495	0.02
05/01/20	05/05/20	55h	SUCTION	464 / 240	192.0	66.8	1.12	2.52	733 / 390	833 / 445	932 / 500	2.07
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
06/24/20	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2
05/01/20	1157	1	0	4	0	0	0	0	0	0	1	0	0	0	0	0	14	0	1	0	2	0	0	1
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	
05/01/20	Fluid is in very poor condition due to severe oxidation. Very high iron content indicates corrosion. The Acid Number, viscosity and solids content also all extremely high. System will require internal cleaning and fluid replacement.

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