

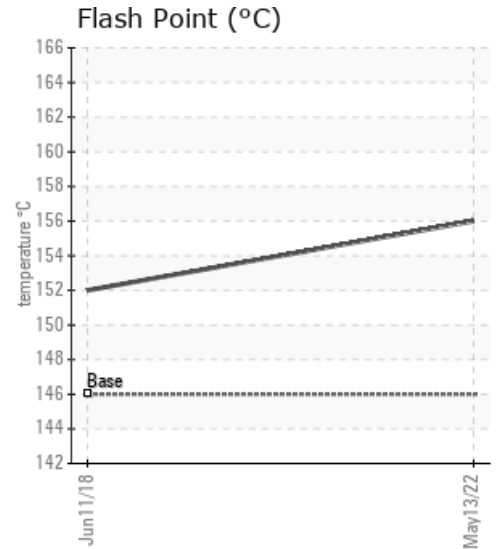
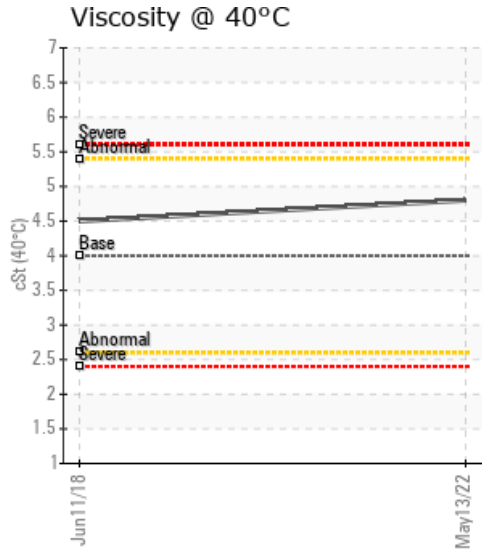
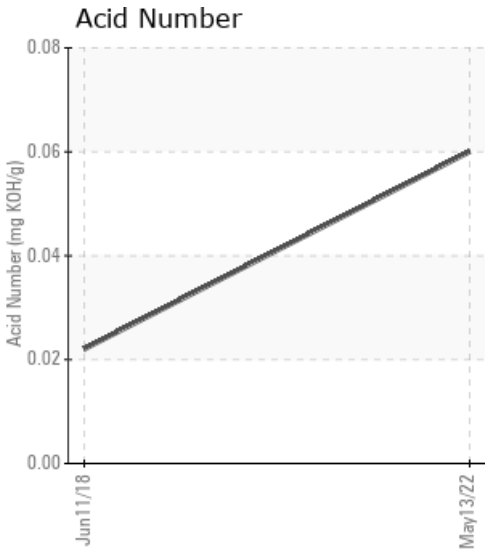
[05-34-55-21 W4M] 2830 HOT OILER BOILER FLUID

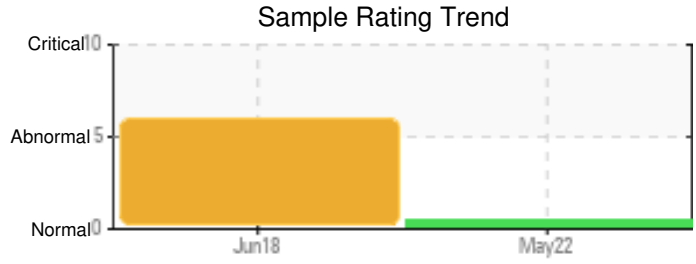
Customer: PTRHTF20198	System Information	Sample Information
ATCO ENERGY 55514 RR 212 STRATHCONA COUNTY, AB T8L 4A3 Canada Attn: Derek Marks Tel: (780)868-9918 E-Mail: derek.marks@atco.com	System Volume: 18000 ltr Bulk Operating Temp: 464F / 240C Heating Source: Blanket: Fluid: EASTMAN THERMINOL 59 Make: PETRO-TECH	Lab No: 02490511 Analyst: Terry Veenstra Sample Date: 05/13/22 Received Date: 05/25/22 Completed: 05/30/22 Terry Veenstra terry.veenstra@hollyfrontier.com

Recommendation: Fluid type us not a Petro-Canada product. Viscosity, Pentane Insolubles, Flashpoint and Acid Number are all with range of new product continue to use and resample in 6 - 12 months.

Comments:

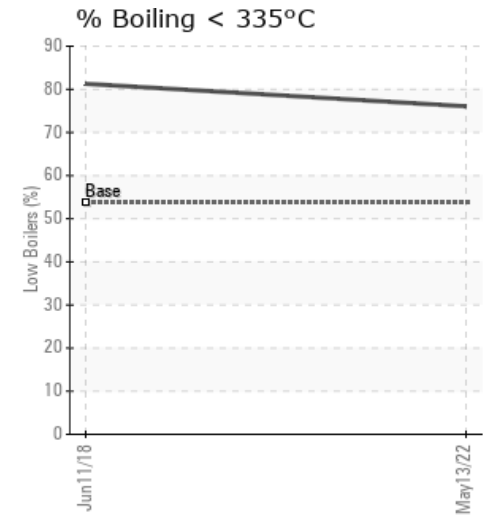
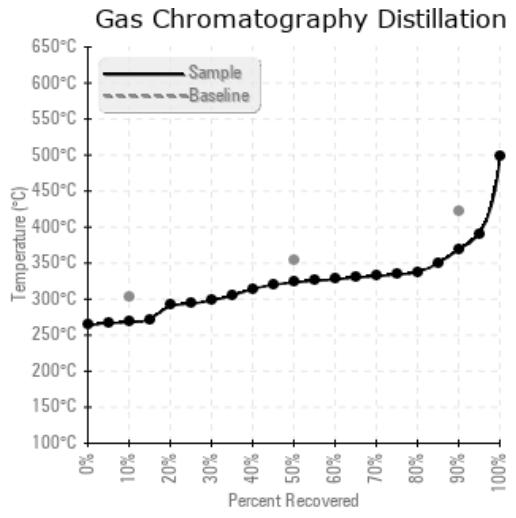
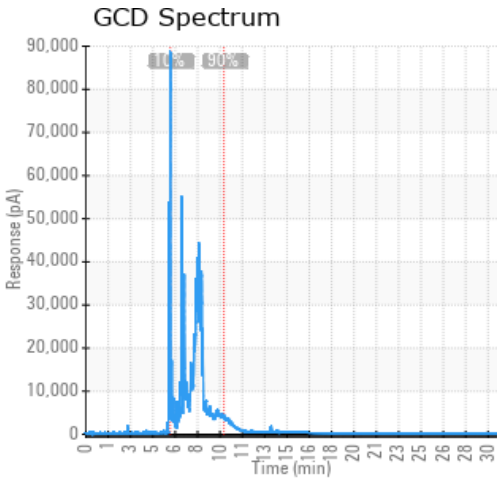
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/13/22	05/25/22	3.0y		313 / 156	44.5	4.8	0.06	0.033	515 / 268	614 / 323	696 / 369	76.04
06/11/18	06/13/18	2.0y		306 / 152	3010.9	4.5	0.022	0.079	503 / 262	562 / 294	754 / 401	81.29
Baseline Data				295 / 146		4.0			577 / 303	667 / 353	792 / 422	53.7





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	
05/13/22	30	0	0	0	0	0	0	0	0	0	3	17	0	0	0	0	0	0	0	0	5	0	157	0	
06/11/18	2	0	0	0	0	0	0	0	0	0	5	2	0	0	0	0	0	0	1	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

06/11/18	The water content of the fluid is very high. Removal of the water is required. Free water can be drained from a low drain after allowing settling out. Once water content is reduced to a more acceptable level the remainder of the water can be boiled off to atmosphere. This has to take place at a maximum temperature of 105 degrees C. Please re-sample after removal of the water. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. Excessive free water present. Acid Number (AN) is notably low.

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