

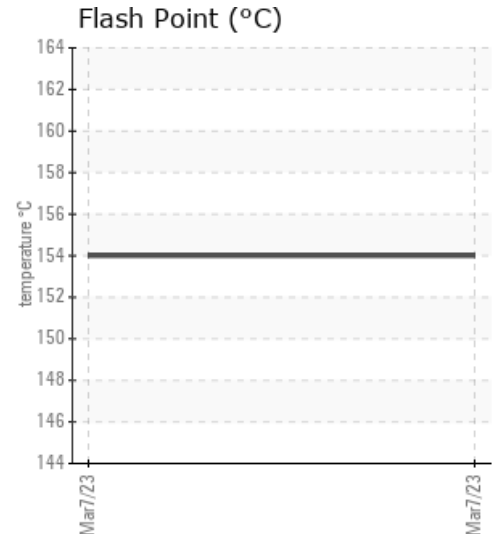
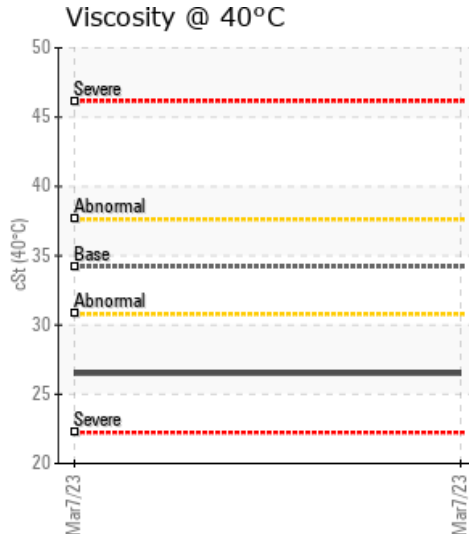
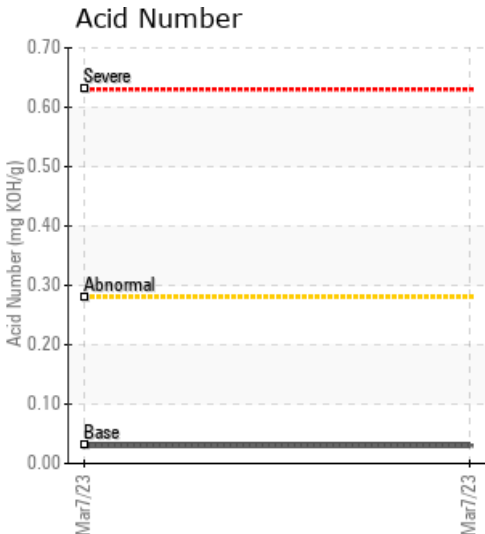
**[03-1-73-8W6] HEAT MEDIUM**

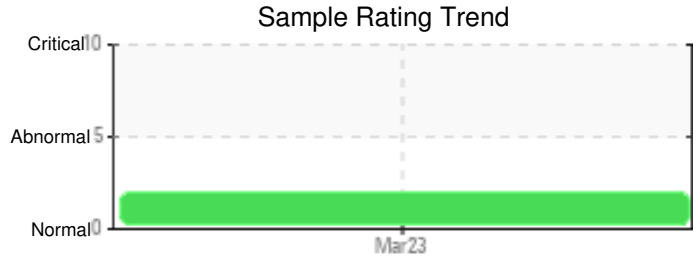
Customer: PTRHTF20204	System Information	Sample Information
ADVANTAGE OIL AND GAS	System Volume: 0 ltr	Lab No: 02547834
HYPHE, AB CA	Bulk Operating Temp: 410F / 210C	Analyst: Clinton Buhler
Attn: Travis Old	Heating Source:	Sample Date: 03/07/23
Tel: (780)518-1047	Blanket:	Received Date: 03/27/23
E-Mail: told@advantageog.com	Fluid: PETRO CANADA PETRO-THERM	Completed: 04/12/23
	Make: PETROTECH	Clinton Buhler
		Clinton.Buhler@HFSinclair.com

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. However, please note reduced fluid viscosity and flash point as well as elevated low boiler vapor content (%<335C) of 6.67%. This can be associated with either thermal degradation, contamination with a lower viscosity process fluid such as condensate or dilution from high pressure gas blanket. Please confirm if the listed 200 kpa blanket gas is required for pump NPSH; ideally a blanket of 2-3 psi is ideal. Please vent system of low boiling vapors and then re-sample in 6 months.

Comments: COC Flash Point is severely low. Visc @ 40°C is abnormally low.

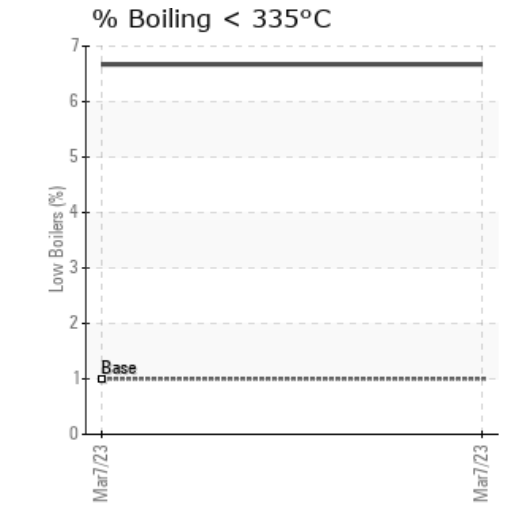
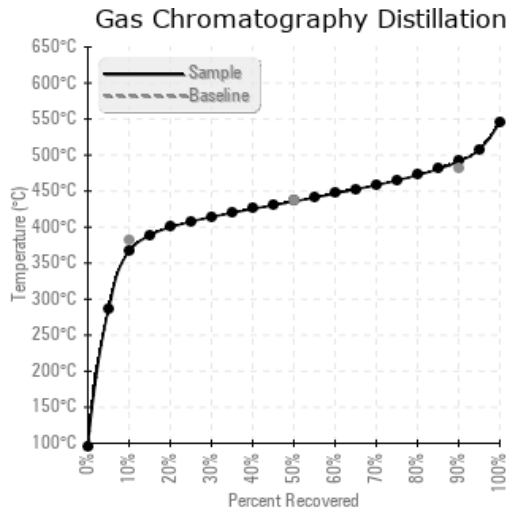
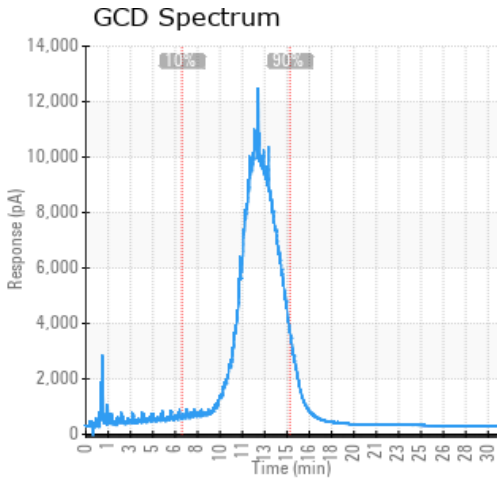
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/07/23	03/27/23	3.0y		309 / 154	100.8	26.5	0.03	0.046	693 / 367	816 / 436	916 / 491	6.67
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
03/07/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
<b>Baseline Data</b>			0	0						0			0	0					0				0	

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



### Historical Comments


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