

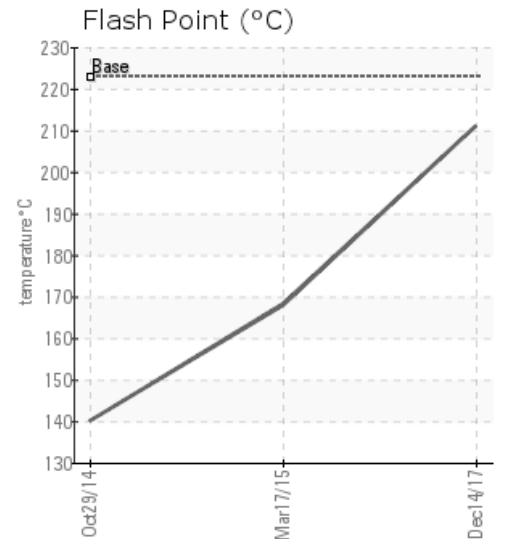
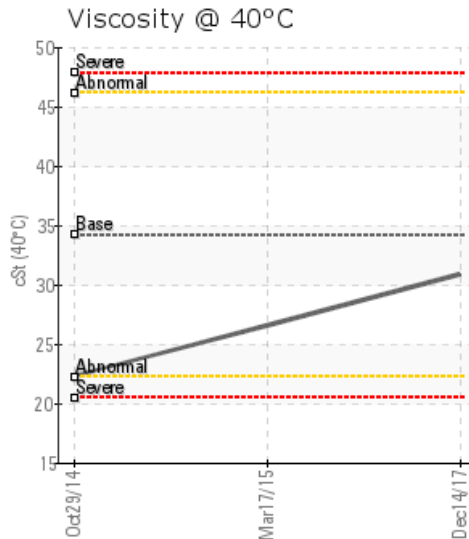
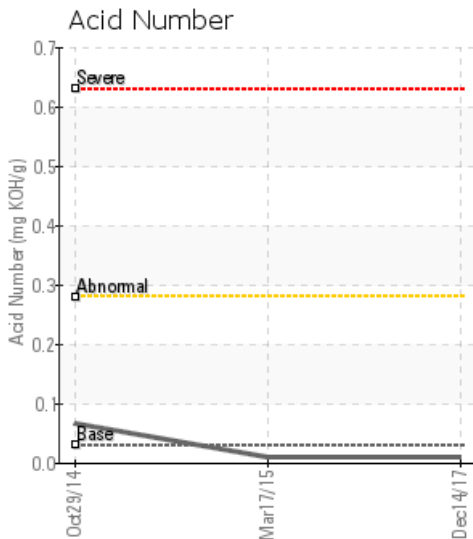
[PROGRESS ENERGY] 049 HEAT MEDIUM B-88-I/94-B-1

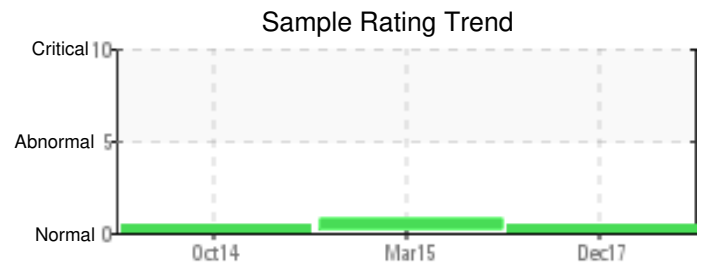
Customer: PTRHTF20039	System Information	Sample Information
BRENNTAG CANADA INC 3124-54TH AVENUE SE CALGARY, AB T2A 0A8 CANADA Attn: Toader Georgiana Tel: E-Mail: gtoader@brenntag.ca	System Volume: 2000 ltr Bulk Operating Temp: 392F / 200C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: PROPAK	Lab No: 02190592 Analyst: Clinton Buhler Sample Date: 12/14/17 Received Date: 01/02/18 Completed: 01/12/18 To discuss this report contact Clinton Buhler at 780-516-9920

Recommendation: Please ensure complete sample registration card is filled out including unit ID, heater manufacture and model. Sample results indicate that the heat transfer fluid is suitable for continued service. Continue to monitor system operation. Re-sample in 12 months.

Comments:

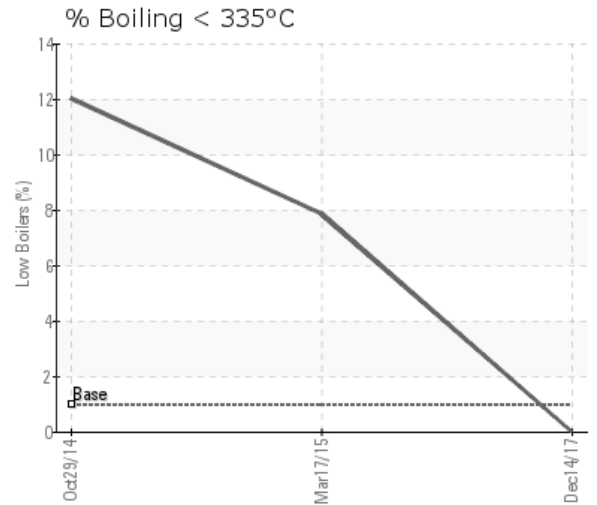
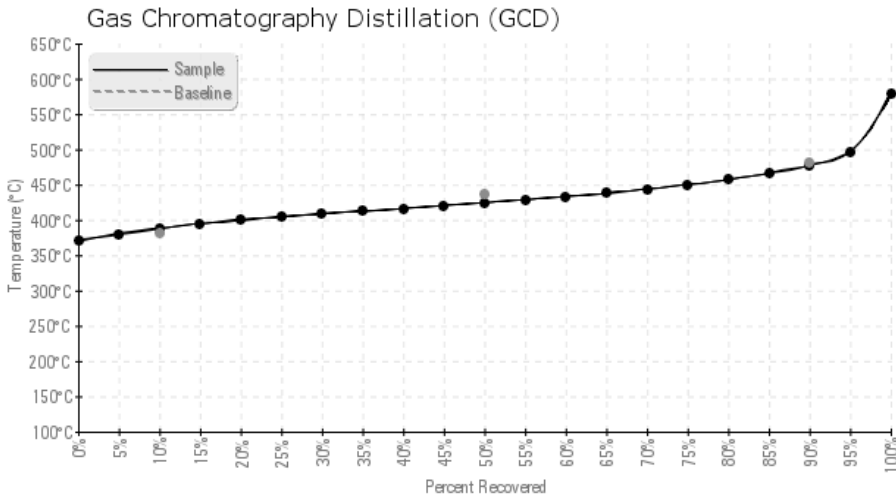
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/14/17	01/02/18	2m		412 / 211	9.5	30.9	0.01	0.085	731 / 388	796 / 424	892 / 478	0.00
03/17/15	04/15/15	34m	SIGHT GLASS DRAIN	334 / 168	95.1	26.5	0.01	0.008	659 / 349	782 / 417	885 / 474	7.86
10/29/14	11/11/14	0m	LOW LEVEL BLEED	284 / 140	7.4	22.3	0.066	0.064	575 / 302	788 / 420	904 / 484	12.03
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	
12/14/17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03/17/15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/14	0	0	0	0	0	0	2	0	0	0	0	0	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	
03/17/15	Oil Flash Point is moderately low however this sample is much better then the previous sample.GCD @ 10% has also improved from last sample. Resample in 6 months. COC Flash Point is abnormally low. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low.
10/29/14	Viscosity has come up from 18.8 cSt to 22.3 cSt and Flash has come up from 122 deg C to 140 deg C however is still very low. Resample in 3 months and if the opportunity comes up, top up system with fresh oil. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. (GCD) % < 335°C is abnormally high.

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