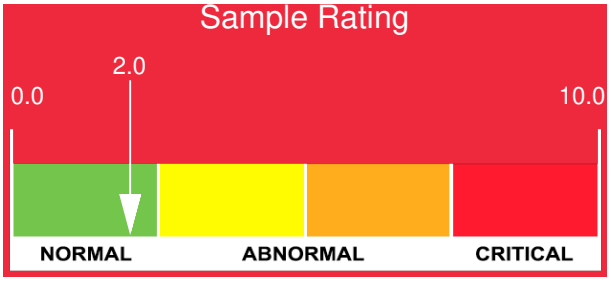
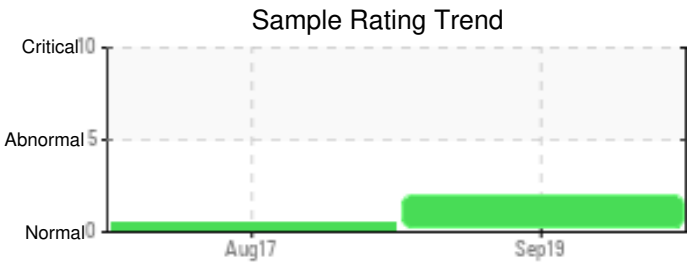




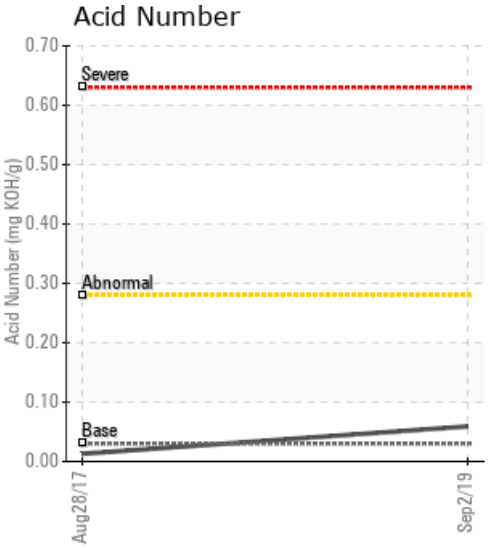
[SINOPEC / 07-22-68-08W6] Z-3100

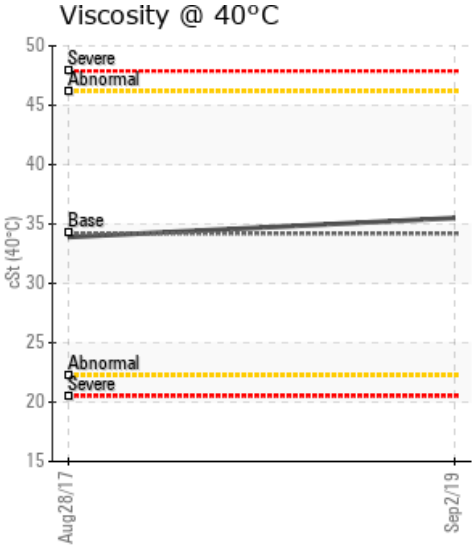
Customer: PTRHTF20039	System Information	Sample Information
BRENNTAG CANADA INC 3124-54TH AVENUE SE CALGARY, AB T2C 0A8 CA Attn: Matthew Kryska Tel: E-Mail: mkryska@brenntag.ca	System Volume: 9000 ltr Bulk Operating Temp: 446F / 230C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO	Lab No: 02310447 Analyst: Clinton Buhler Sample Date: 09/02/19 Received Date: 09/24/19 Completed: 10/03/19 Clinton Buhler Clinton.Buhler@HFSinclair.com

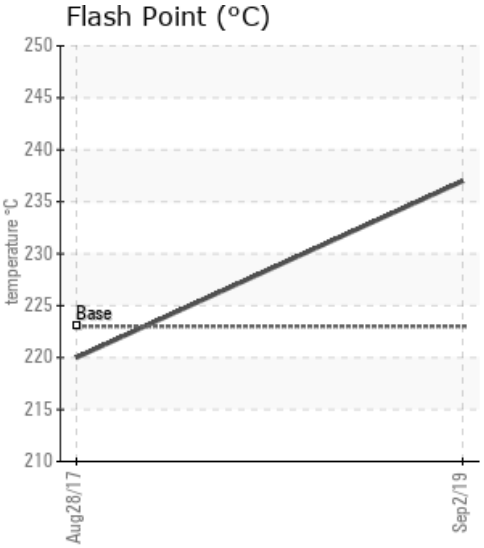
Recommendation: **Please ensure time on oil is properly filled in on the analysis request form**Sample results indicate that the heat transfer fluid is suitable for continued service. 90% distillation has increased. This can indicate oxidation of the fluid; the slight increase in Acid Number may support this.Please ensure that blanket gas is operational in the expansion tank to protect the fluid from contact with air. Remaining results acceptable.Please re-sample in 6-12 months and please ensure time on fluid is included.

Comments: (GCD) 90% Distillation Point is severely high.

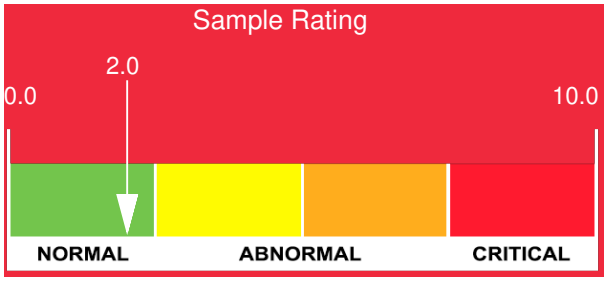
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/02/19	09/24/19	2.0y	SITE GLASS	459 / 237	2.9	35.5	0.059	0.055	744 / 396	836 / 447	940 / 505	0.40
08/28/17	09/06/17	2.0y	MIDDLE SIGHT GLASS	428 / 220	61.2	33.9	0.013	0.093	721 / 383	812 / 434	912 / 489	0.61
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

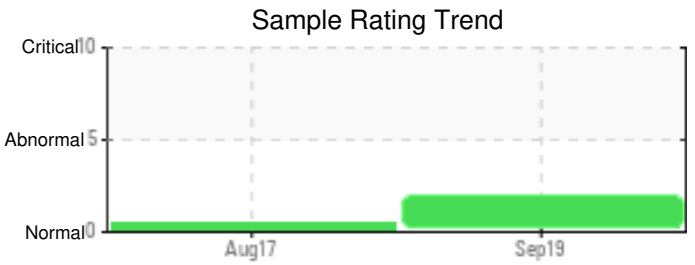






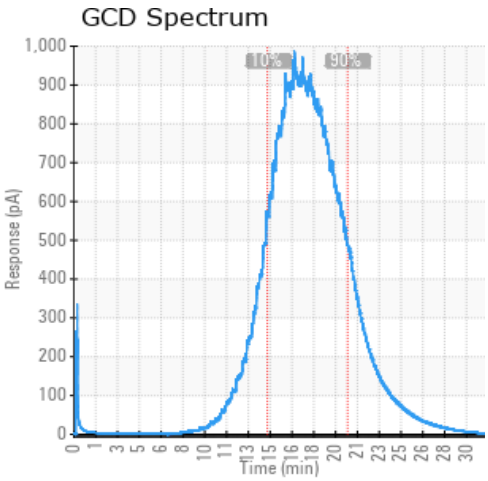
PETRO-CANADA LUBRICANTS

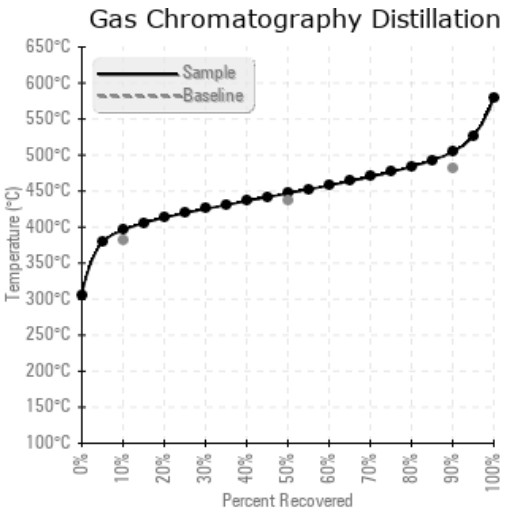


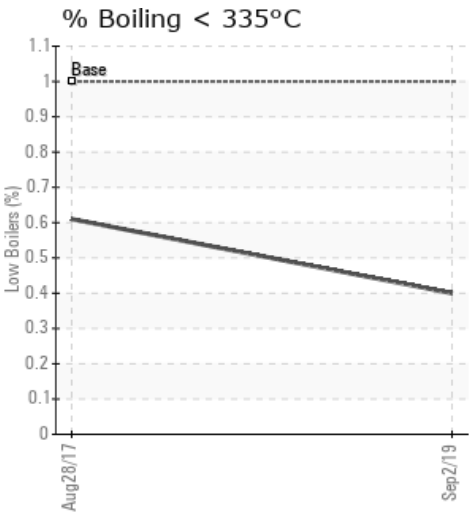


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/02/19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08/28/17	10	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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







Historical Comments

08/28/17	Sample results indicate that the heat transfer fluid is suitable for continued use. Re-sample in 12 months