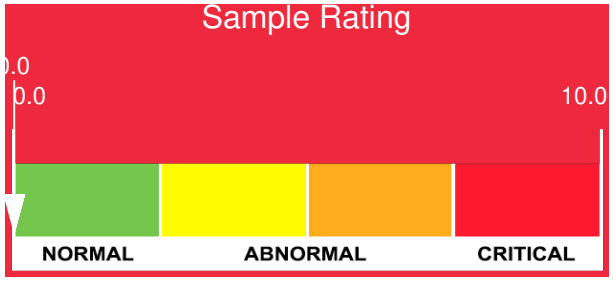
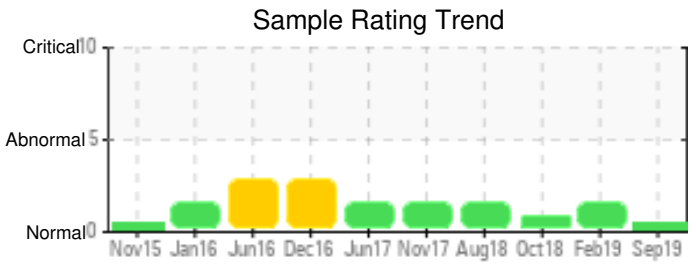




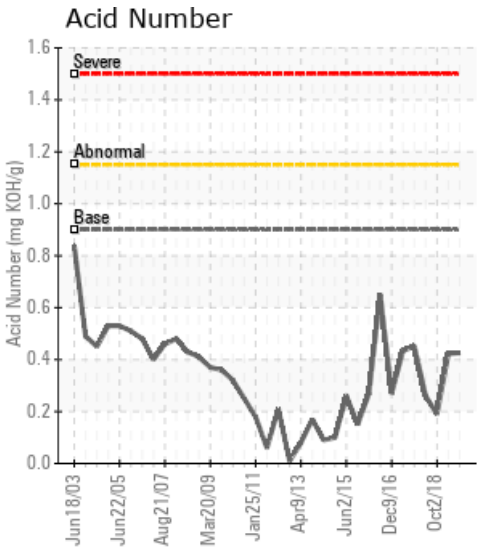
RELUTHERM RTAG-14

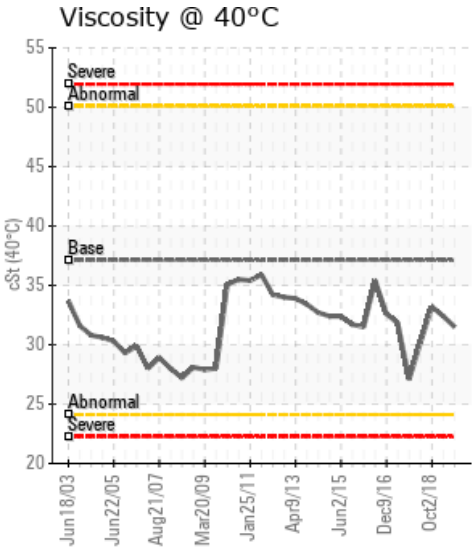
Customer: PTRHTF40043	System Information	Sample Information
MORA PRODUCTIE BV FREGATWEG 53 MAASTRICHT 6222NZ MAASTRICHT, 6222NZ Netherlands Attn: WILBERT SNIJERS Tel: E-Mail: w.snijers@klt.nl	System Volume: 10000 ltr Bulk Operating Temp: 275F / 135C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: RELUTHERM	Lab No: 02307721 Analyst: Philip Riley Sample Date: 09/05/19 Received Date: 09/11/19 Completed: 09/15/19

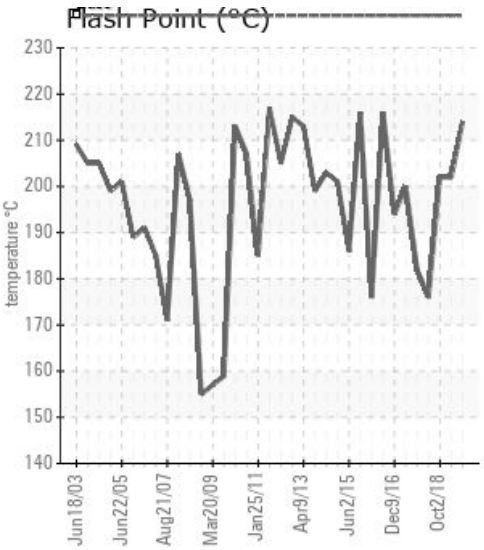
Recommendation: Product within normal working limits and fit for further use. Please sample at next designated interval

Comments:

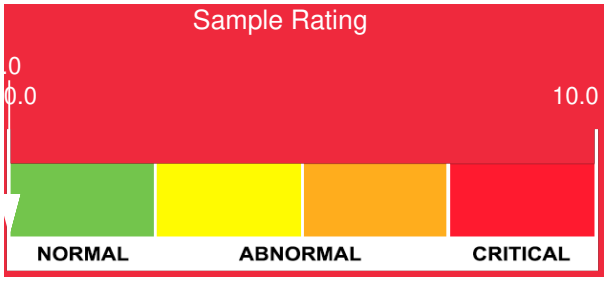
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
09/05/19	09/11/19	16y		417 / 214	22.6	31.5	0.426	0.099	681 / 361	791 / 422	880 / 471	4.31
02/21/19	02/26/19	16y		396 / 202	9.6	32.4	0.423	0.086	690 / 365	803 / 428	915 / 491	3.75
10/02/18	10/10/18	0y		396 / 202	14.1	33.2	0.19	0.042	704 / 373	803 / 428	902 / 484	1.30
08/23/18	08/28/18	15y		349 / 176	0.00	30.2	0.26	0.156	680 / 360	802 / 428	910 / 488	5.02
11/24/17	11/29/17	15y		360 / 182	69.6	27.1	0.452	0.070	688 / 364	809 / 432	915 / 491	4.60
06/20/17	06/26/17	14y		392 / 200	21.3	31.8	0.434	0.085	681 / 360	809 / 432	928 / 498	5.29
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5

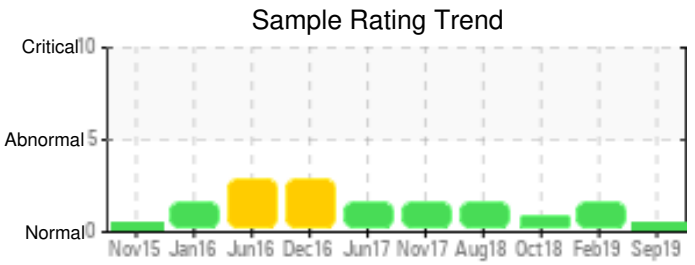






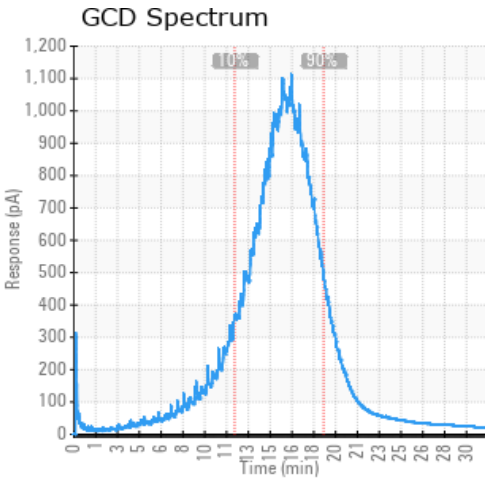
PETRO-CANADA LUBRICANTS

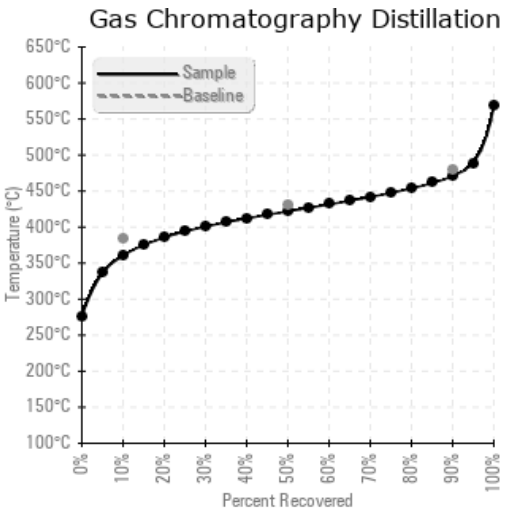


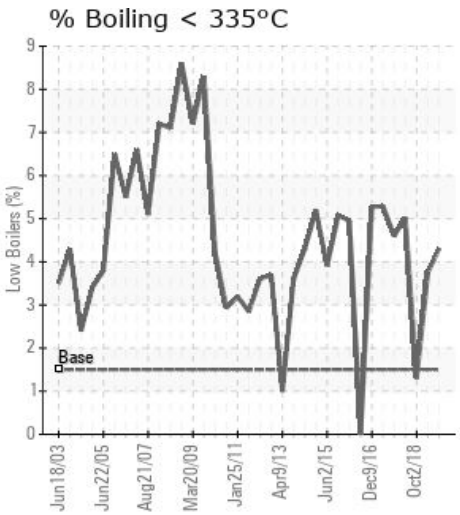


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
09/05/19	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	38	2
02/21/19	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0
10/02/18	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	1
08/23/18	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	5
11/24/17	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	36	2
06/20/17	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	4
Baseline Data			0	0						0			0	0					0				230	

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







Historical Comments

02/21/19	FLuid marginally low on flash point but in line with previous samples. Fluid fit for further use (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
10/02/18	Looks to have undergone some system/fluid maintenance since last sample 12 months ago. The fluid has recovered but could still benefit a little venting to drive off any light ends. Evidence of some fluid cracking on the trace but with correct venting, if safe to do so, COC Flash point should further recover. COC Flash Point is marginally low.
08/23/18	Flash Point (COC) continued decline to a point at which the fluid needs to be changed. The GCD shows increased number of light molecules also supporting this. If the system can be safely vented then it may prolong the service life by raised the flash point. If it cannot then the fluid should be changed COC Flash Point is severely low.
11/24/17	COC flash very low, and significant drop in viscosity. Evidence of increased light molecules in the GC. If safe to do so, should consider venting the system to remove light end molecules which should raise the flash point. If this cannot be done, consider oil change as the fluid is deteriorating. COC Flash Point is abnormally low. (GCD) 90% Distillation Point is marginally high.
06/20/17	Oil is fit for further service. Suggest sample at next scheduled maintenance interval. (GCD) 90% Distillation Point is abnormally high. COC Flash Point is marginally low.

