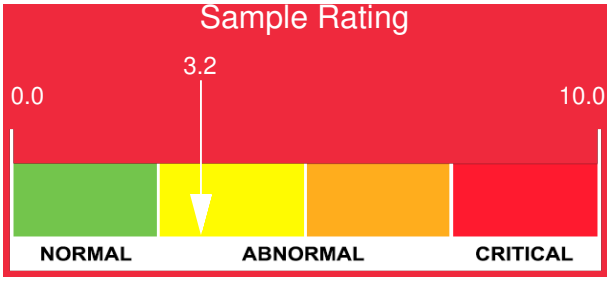
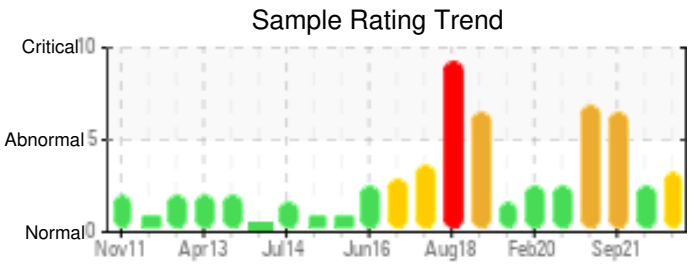




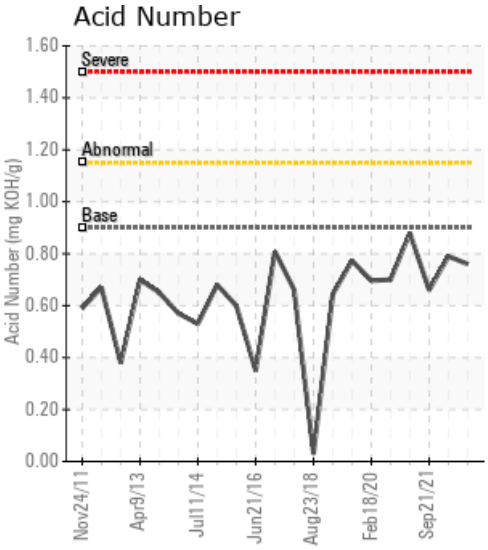
MORA HE

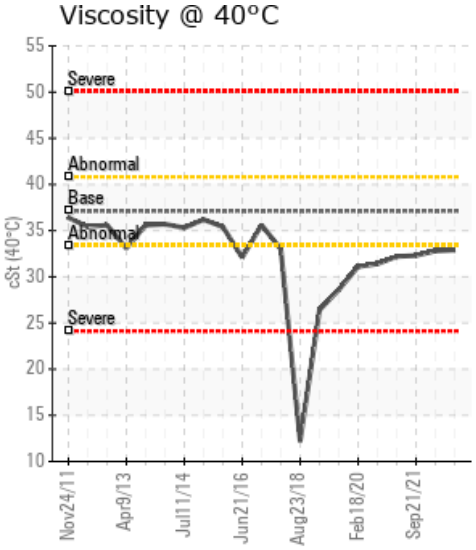
Customer: PTRHTF40043	System Information	Sample Information
MORA PRODUCTIE BV FREGATWEG 53 MAASTRICHT 6222NZ MAASTRICHT, 6222NZ Netherlands Attn: WILBERT SNIJERS Tel: E-Mail: w.snijers@klt.nl	System Volume: 800 ltr Bulk Operating Temp: 300F / 149C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make:	Lab No: 02516482 Analyst: Bill Quesnel CLS,OMA II,MLA-III,LLA-I Sample Date: 10/11/22 Received Date: 10/17/22 Completed: 10/19/22 Bill Quesnel CLS,OMA II,MLA-III,LLA-I

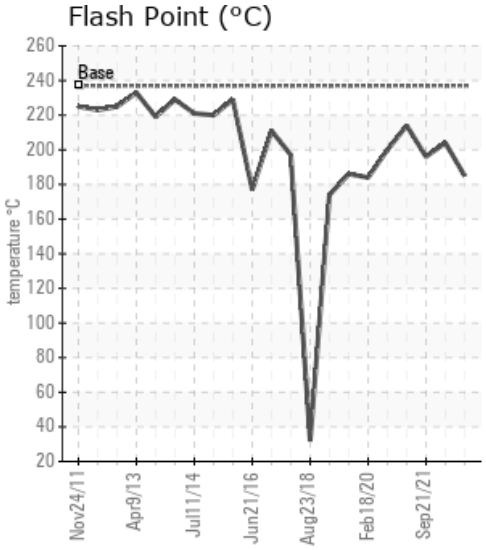
Recommendation: COC Flash Point is low. Suggest venting the expansion tank. Resample at the next normal interval.

Comments: Iron ppm levels are abnormal. Pentane Insolubles levels are abnormally high. COC Flash Point is abnormally low. (GCD) 90% Distillation Point is marginally high.

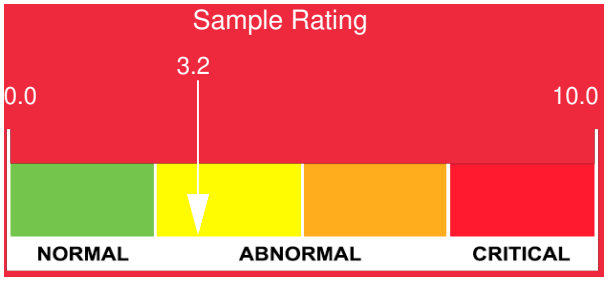
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/11/22	10/17/22	3.8y		365 / 185	12.2	32.9	0.76	0.445	713 / 378	812 / 434	912 / 489	2.72
04/05/22	04/12/22	3.3y		399 / 204	31.6	32.8	0.79	0.141	711 / 377	813 / 434	916 / 491	2.96
09/21/21	09/27/21	32.0y		385 / 196	20.3	32.3	0.66	0.199	711 / 377	812 / 433	911 / 489	2.85
03/09/21	03/15/21	27.0y		417 / 214	29.4	32.2	0.88	0.244	698 / 370	804 / 429	918 / 492	3.82
09/01/20	09/09/20	18.0y		392 / 200	13.8	31.4	0.70	0.114	700 / 371	810 / 432	913 / 489	4.27
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5

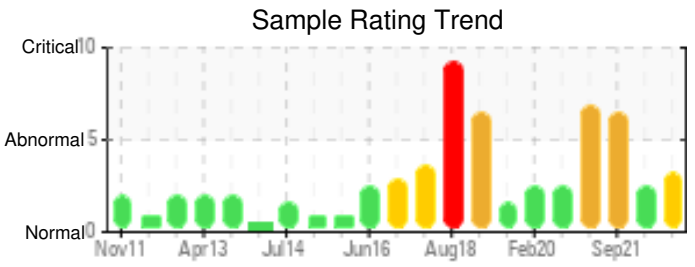






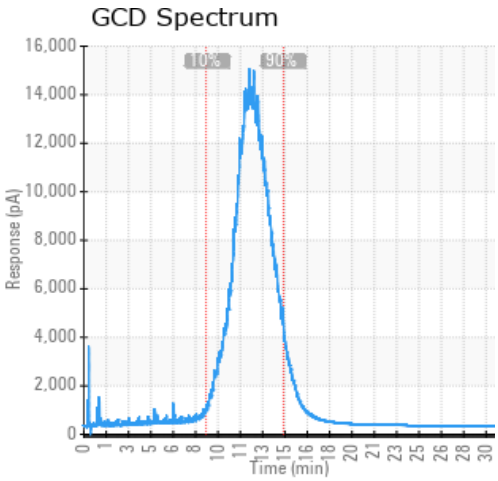
PETRO-CANADA LUBRICANTS

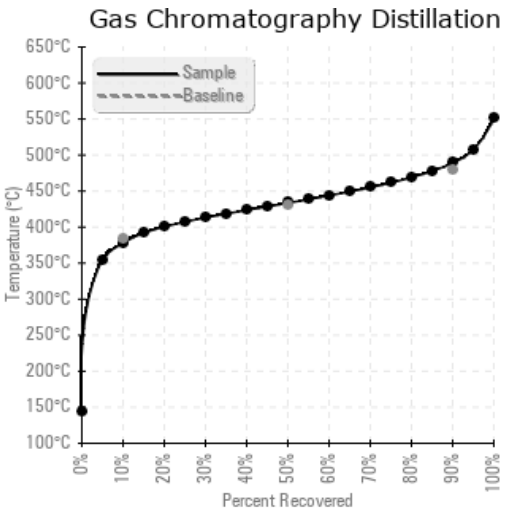


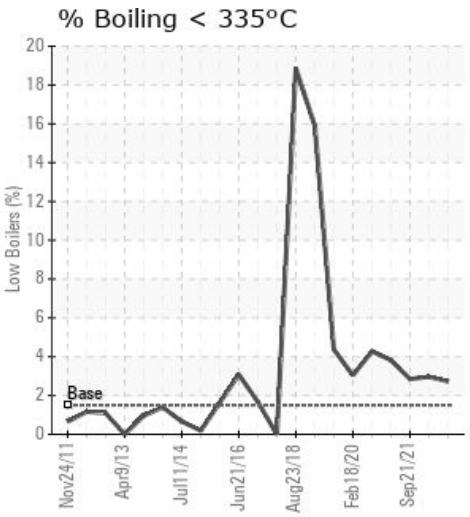


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
10/11/22	209	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	148	5
04/05/22	354	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	167	8
09/21/21	345	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	1	0	173	10
03/09/21	416	0	0	0	1	0	0	0	0	0	2	1	2	0	0	0	3	0	0	0	1	0	187	11
09/01/20	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	176	8
Baseline Data			0	0						0			0	0				0	0				230	

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







Historical Comments

04/05/22	Likely the iron levels are from rust/scale present in the sample as a result of sampling from a low point in the system. Recommend resample in one year to monitor.Iron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
09/21/21	Iron content keeps high. Is the sample taken correctly and really representative for the bulk of the system? The iron content cannot be explained with the TAN values that are OK. Otherwise the oil is fit for further use.PQ levels are severe. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
03/09/21	Iron content cannot be explained with the TAN values. If the system is new this could be a possible explanation, also for the previous results. Otherwise the oil is fit for further use.Iron ppm levels are severe. (GCD) 90% Distillation Point is marginally high.
09/01/20	High level of iron so please investigate the source if possible. Fit for further use and re-sample at next scheduled frequency as these are short frequencies with this systemIron ppm levels are abnormal. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.