![Petro-Canada Lubricants logo]

Sample Rating

0.0   4.4   10.0

NORMAL   ABNORMAL   CRITICAL

Sample Rating Trend

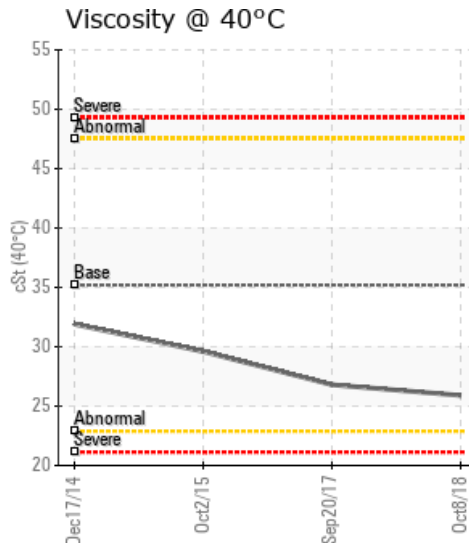Critical 10 / Abnormal 5 / Normal 0 — Dec14, Oct15, Sep17, Oct18
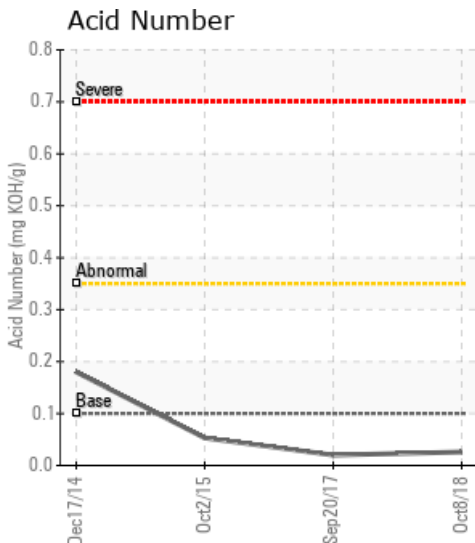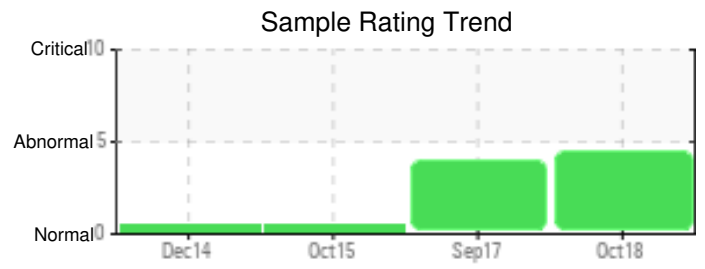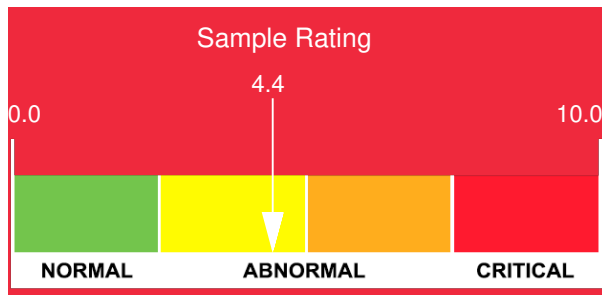
HOT OIL

Customer: PTRHTF10002	System Information	Sample Information
EVONIK 3305 26th ST LOS ANGELES, CA USA Attn: Prakash Mehta Tel: (818)709-0492 E-Mail: purelubricants@earthlink.net	System Volume: 1500 gal Bulk Operating Temp: 600F / 316C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO HTF Make:	Lab No: 02248008 Analyst: Steven Slanker Sample Date: 10/08/18 Received Date: 10/29/18 Completed: 11/02/18

Recommendation: High level of low boilers. Need to vent system and remove these before they become a major hazard. Review heater settings and determine if overheating is taking place during startups and heating cycles.

Comments: (GCD) 10% Distillation Point is abnormally low. (GCD) % < 335°C is marginally high. COC Flash Point is marginally low. (GCD) 90% Distillation Point is marginally low.
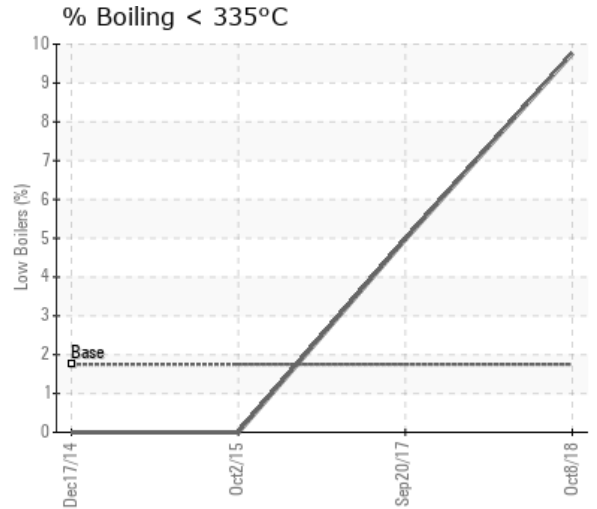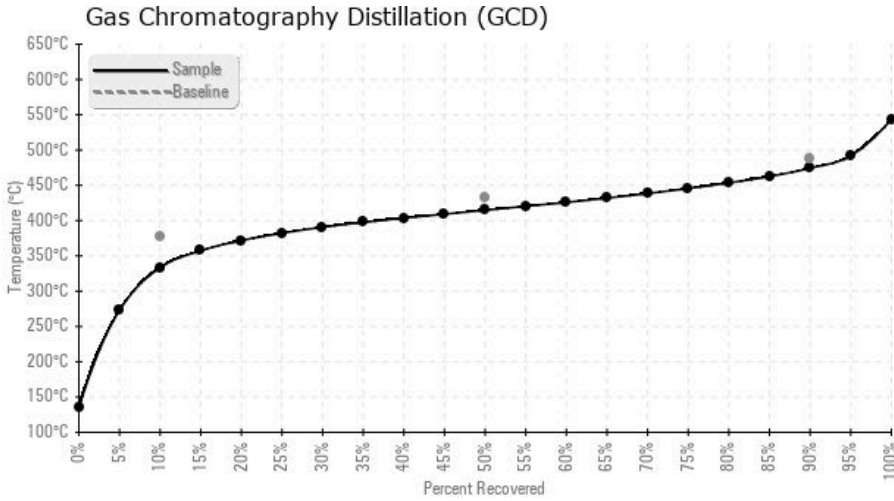
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
10/08/18	10/29/18	0y		378 / 192	21.6	25.9	0.026	0.052	632 / 333	779 / 415	886 / 474	9.76
09/20/17	10/02/17	2y		315 / 157	593.8	26.8	0.02	0.109	687 / 364	805 / 430	936 / 502	4.97
10/02/15	10/20/15	1y		426 / 219	2.4	29.6	0.053	0.071	725 / 385	804 / 429	897 / 480	0.00
12/17/14	01/21/15	1500y		419 / 215	9.0	31.9	0.18	0.108	714 / 379	789 / 421	923 / 495	0.00
Baseline Data				448 / 231		35.20	.1		712 / 378	810 / 432	910 / 488	1.75

Acid Number

Viscosity @ 40°C

Flash Point (°C)

Sample Rating

0.0   4.4   10.0

NORMAL   ABNORMAL   CRITICAL

Sample Rating Trend

Critical 10
Abnormal 5
Normal 0

Dec14   Oct15   Sep17   Oct18
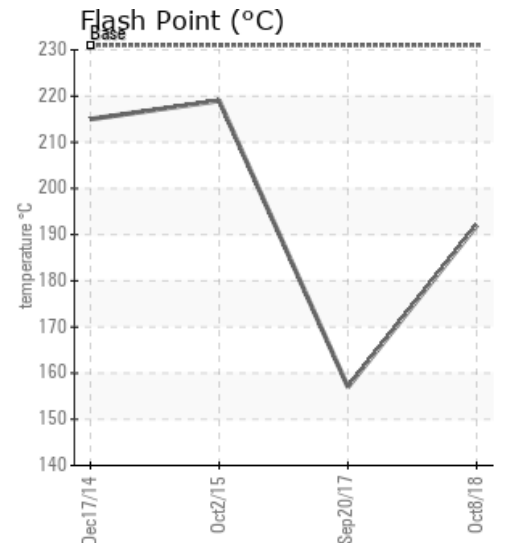
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
10/08/18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0
09/20/17	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0
10/02/15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0
12/17/14	4	0	0	0	0	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	214	0
Baseline Data			0	0							0		0	0						0			280	

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

Gas Chromatography Distillation (GCD)

% Boiling < 335°C

Historical Comments

09/20/17	The Flash Point is severely low and the water high. Vent the tank to remove the low boilers. Replace part of the fluid if venting does not raise the flash point enough. Water contamination levels are marginally high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high. COC Flash Point is severely low. (GCD) 90% Distillation Point is marginally high.
10/02/15	Fluid suitable for continued use. Resample at normal interval.
12/17/14	Fluid suitable for continued use. Resample at normal interval.