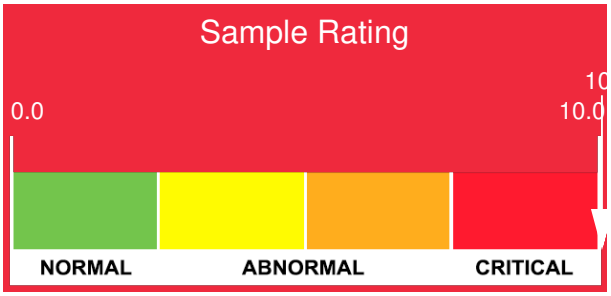
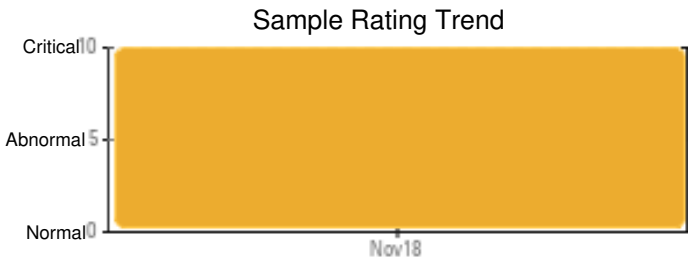
PETRO-CANADA LUBRICANTS





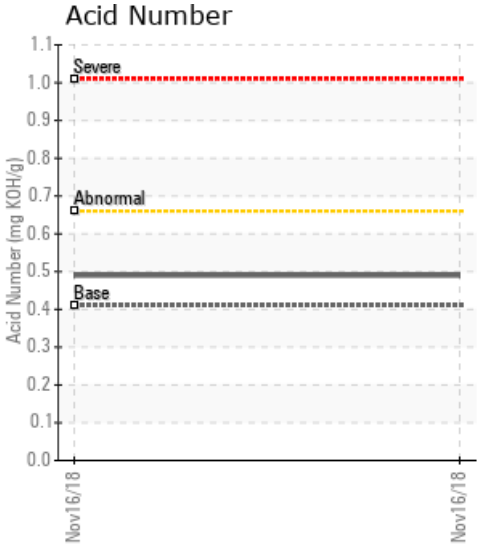
44 BUILDING FIBER REACT

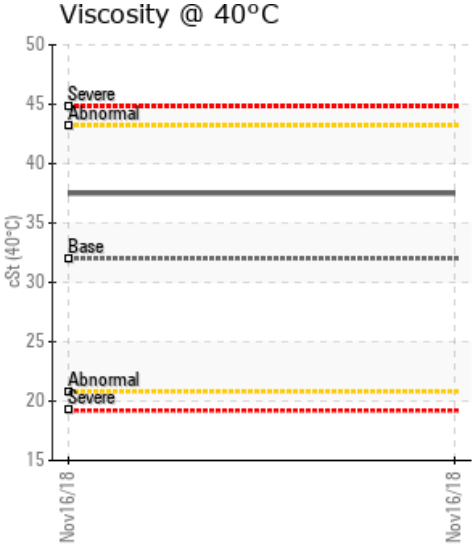
Customer: PTRHTF10204	System Information	Sample Information
TATE & LYLE 2200 EAST ELDORADO ST DECATUR, IL 62521-1578 USA Attn: Vince Fricke Tel: E-Mail: vince.fricke@tateandlyle.com	System Volume: 1000 gal Bulk Operating Temp: 550F / 288C Heating Source: Blanket: Fluid: HEAT TRANSFER FLUID ISO 32 Make:	Lab No: 02253878 Analyst: Joe Goecke Sample Date: 11/16/18 Received Date: 11/27/18 Completed: 11/29/18

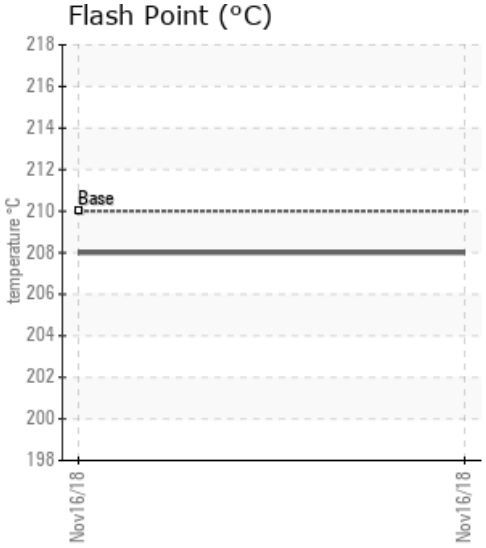
Recommendation: Iron levels and PQ rating could be improved with filtration of the system. If the system does have a filter or screen make sure this is operational and if not consider adding this to the system. We also see some evidence of cracking with the rise in low boilers, or distillation % Less than 335 deg C. However we do not see this reflected in the flash point or viscosity since those are both close to normal. I would suggest filtration and or partial exchange. This oil would have the same heat transfer capabilities as new oil.

Comments: PQ levels are severe. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is severely low. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low. (GCD) 50% Distillation Point is marginally low.

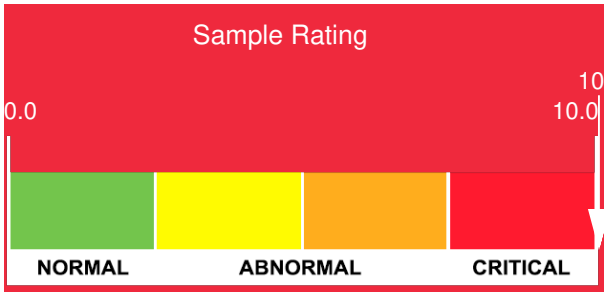
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/16/18	11/27/18	11y		406 / 208	290.3	37.5	0.49	0.240	638 / 337	735 / 391	823 / 440	8.86
Baseline Data				410 / 210		32	0.41		707 / 375	802 / 428	910 / 488	1.5

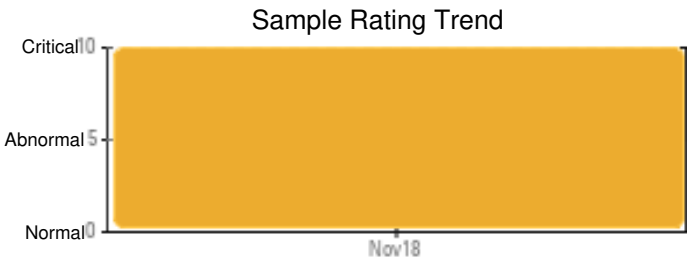






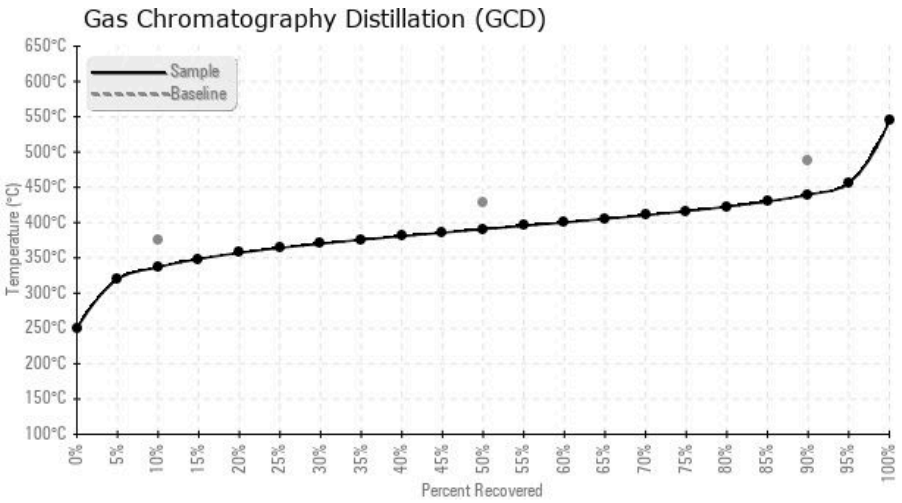
PETRO-CANADA LUBRICANTS

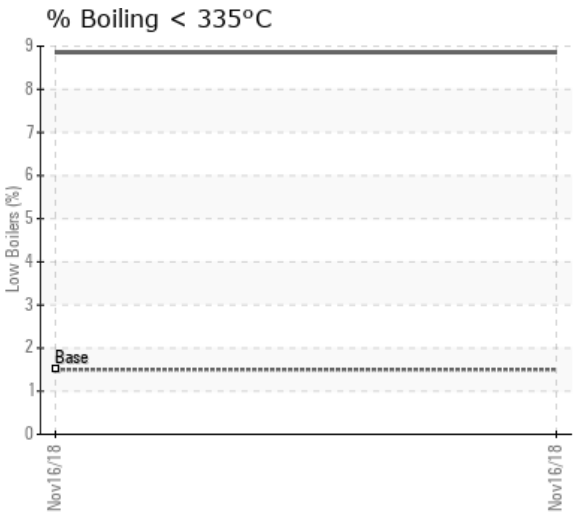




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
11/16/18	208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	57	0
Baseline Data			0	0						0			0	0					5				250	

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





Historical Comments
