

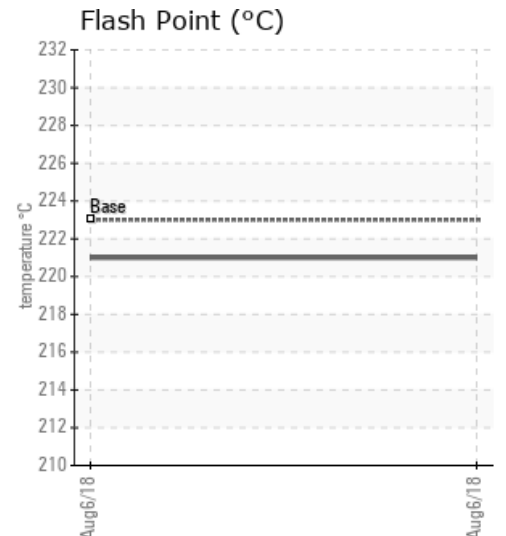
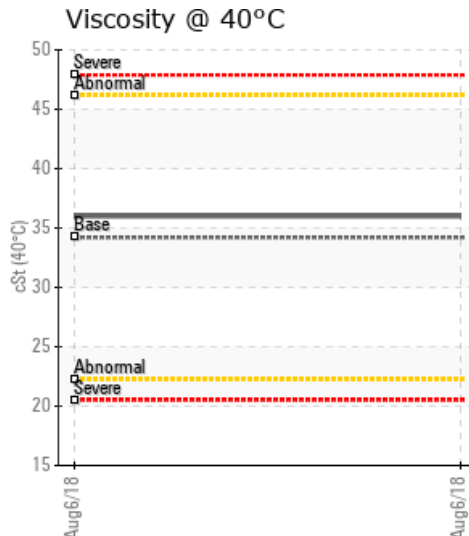
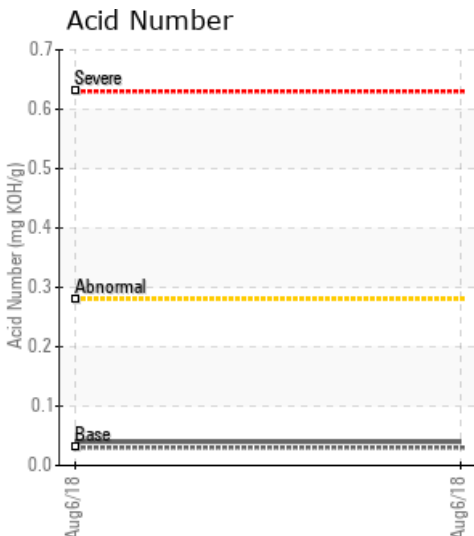
[BLUE LAKE/TRANS CANADA] BLUELAKE THERMAL

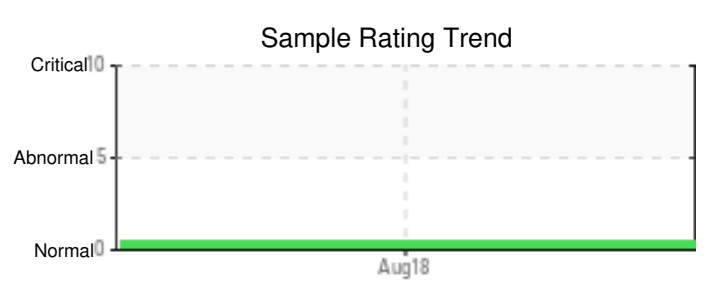
Customer: PTRHTF10172	System Information	Sample Information
BLARNEY CASTLE OIL & PROPANE 12218 WEST ST P.O. BOX 246 BEAR LAKE, MI 49614 USA Attn: DON MEADOWS Tel: (989)370-1297 E-Mail: dmeadows@blarneycastleleoil.com	System Volume: 6000 gal Bulk Operating Temp: 675F / 357C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALTO	Lab No: 02233392 Analyst: Yvette Trzcinski Sample Date: 08/06/18 Received Date: 08/13/18 Completed: 08/27/18 To discuss this report contact Yvette Trzcinski at (262)933-0718

Recommendation: Oil is in good condition slight increase in viscosity and changes in boiling points that suggest seeing some degradation but insolubles and total acid number are low as well as contaminants and water. Resample at normal interval

Comments:

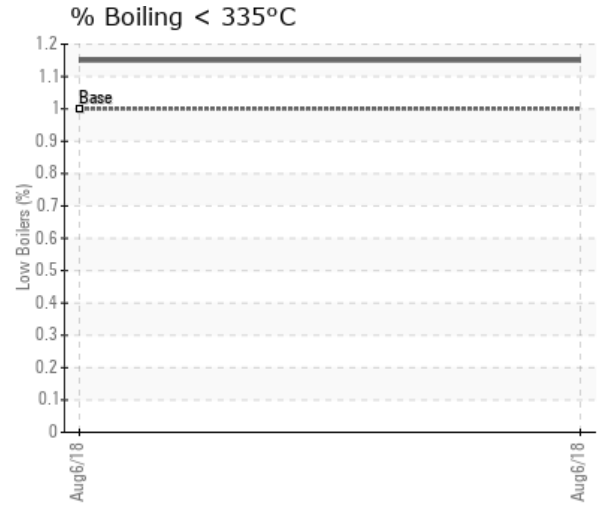
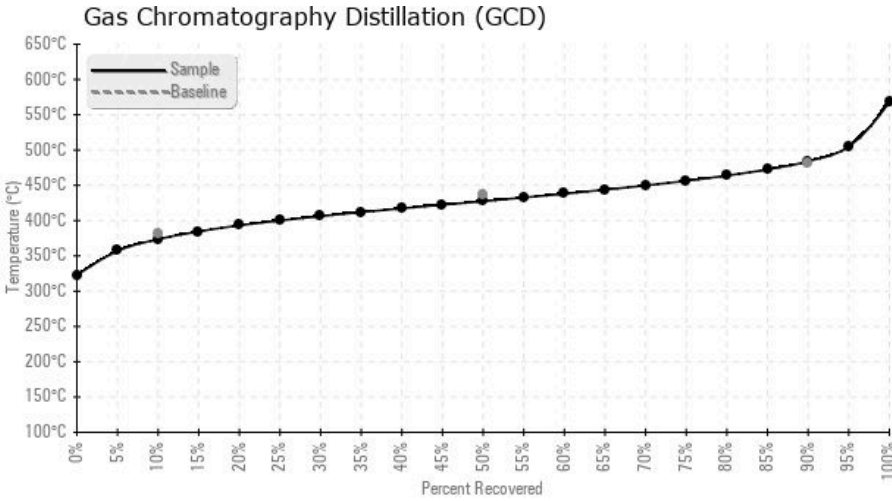
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
08/06/18	08/13/18	5y	PUMP FEED LINE	430 / 221	6.6	36.0	0.04	0.097	704 / 374	801 / 427	903 / 484	1.15
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





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
08/06/18	12	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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



Historical Comments

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