

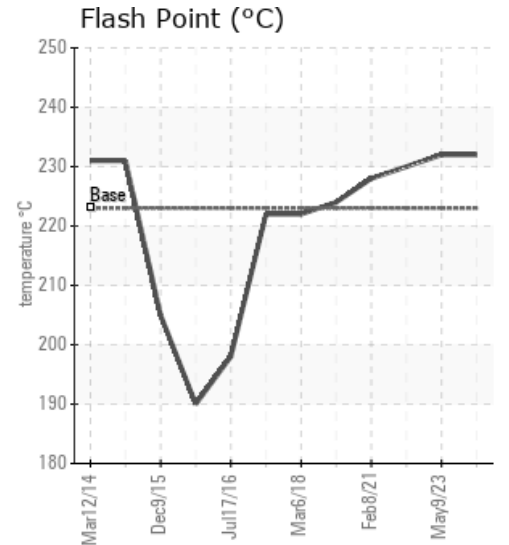
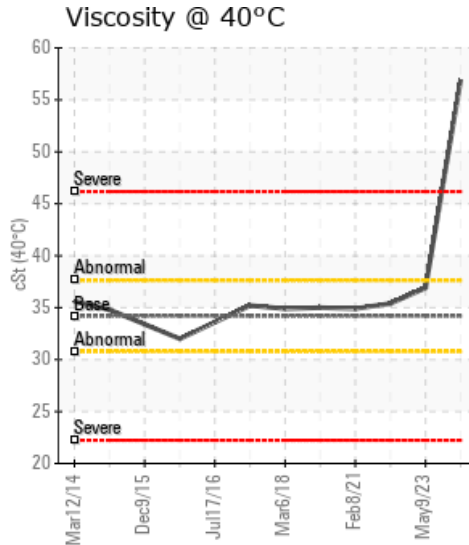
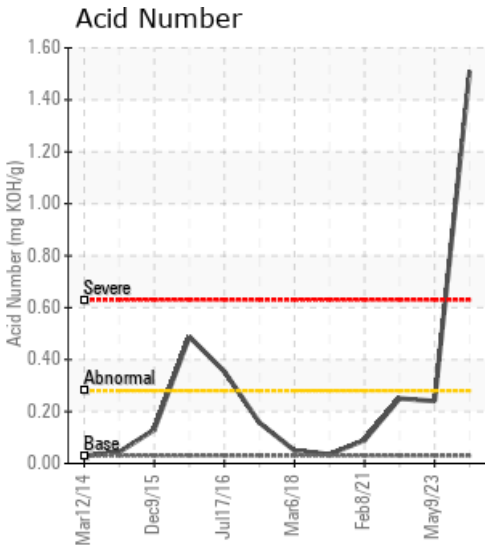
## [15-12-50-21W5] TOURMALINE BANSHEE 5500-2

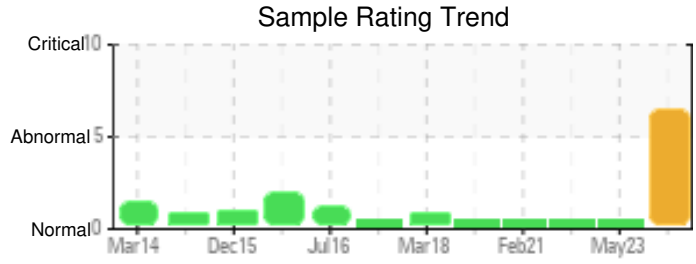
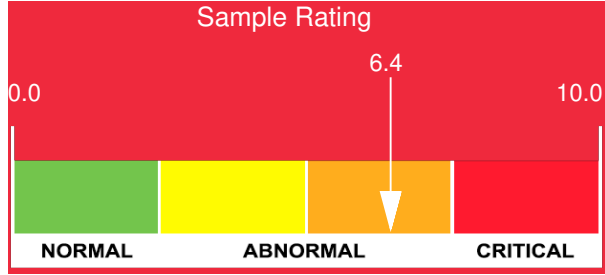
Customer: PTRHTF60079	System Information	Sample Information
Tourmaline 15-12-50-21W5 Edson, AB T7E 1R8 CA Attn: Justin Thebeau Tel: E-Mail: justin.thebeau@tourmalineoil.com	System Volume: 20000 ltr Bulk Operating Temp: 482F / 250C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: RUSHTON	Lab No: 02614326 Analyst: Lyle Dach Sample Date: 01/20/24 Received Date: 02/08/24 Completed: 02/13/24 Lyle Dach lyle.dach@HFSinclair.com

Recommendation: There appears to be a significant change in the fluid viscosity, acidity and pentane insolubles in 8 months time. This would be severe degradation in that short period of time. Resample the unit, ensure the sample point is purged adequately and the sample is representative of the whole system. If equipped the pump discharge line is an ideal place to collect the sample; low point drains can collect settled materials and may not be representative of the whole system if not purged well.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. Visc @ 40°C is severely high. (GCD) 90% Distillation Point is marginally high.

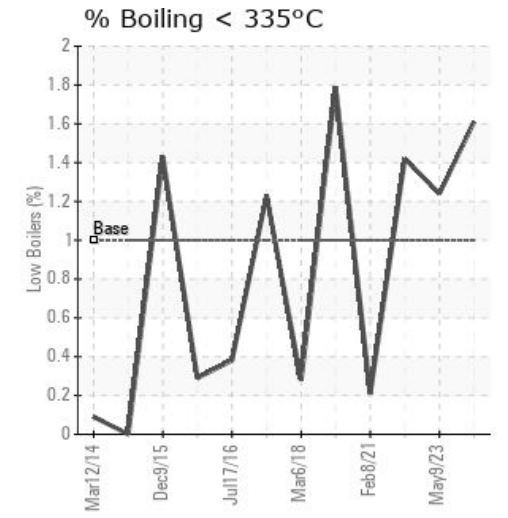
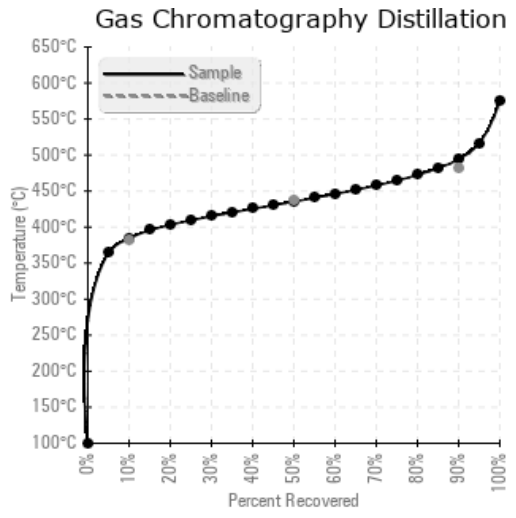
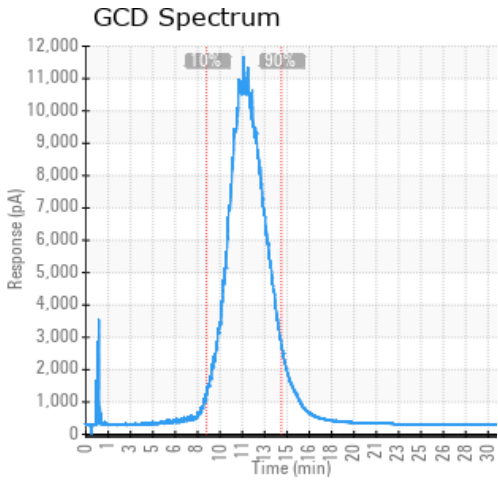
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/20/24	02/08/24	7.5y		450 / 232	159	56.9	1.51	1.11	724 / 384	816 / 435	921 / 494	1.61
05/09/23	05/23/23	0.0y		450 / 232	11.8	36.9	0.24	0.254	724 / 385	815 / 435	915 / 490	1.24
07/05/22	07/19/22	0.0y	discharge	446 / 230	15.1	35.4	0.25	0.139	723 / 384	814 / 434	917 / 492	1.42
02/08/21	03/02/21	12.0y	Pump Discharge	442 / 228	8.5	34.9	0.09	0.099	730 / 388	817 / 436	918 / 492	0.21
02/10/19	02/19/19	0.0y	15-12-50-21WS	435 / 224	8.9	35.0	0.035	0.047	700 / 371	797 / 425	913 / 489	1.79
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
01/20/24	28	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05/09/23	10	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/05/22	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/08/21	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/10/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Baseline Data</b>			0	0						0			0	0					0				0	

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



Historical Comments	
05/09/23	Sample results indicate that the fluid is in good condition and is suitable for continued service. Resample in 12 months.
07/05/22	Sample results indicate that the fluid is in very good condition and is suitable for continued service. Resample in 12 months. If possible please include time on oil when filling out analysis request forms.
02/08/21	Fluid remains in excellent condition. Continue to submit samples annually to proactively monitor fluid condition.
02/10/19	The fluid is in good condition and suitable for further use. Please re-sample in 12 months. When filling in the analysis request form please enter the service life of the fluid.

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