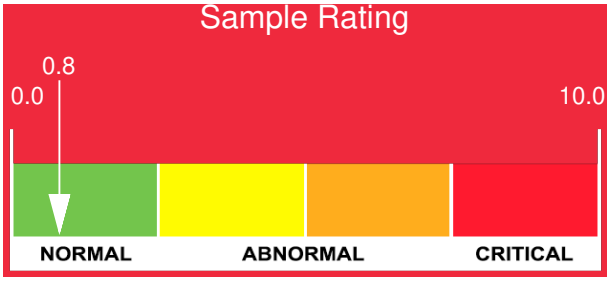
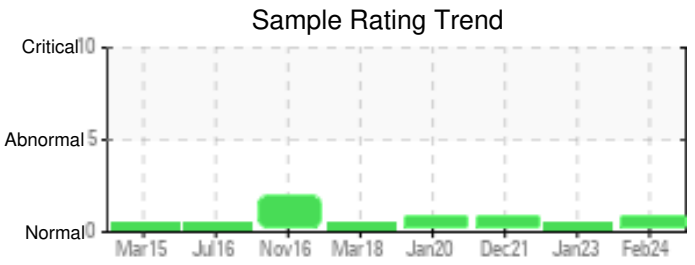




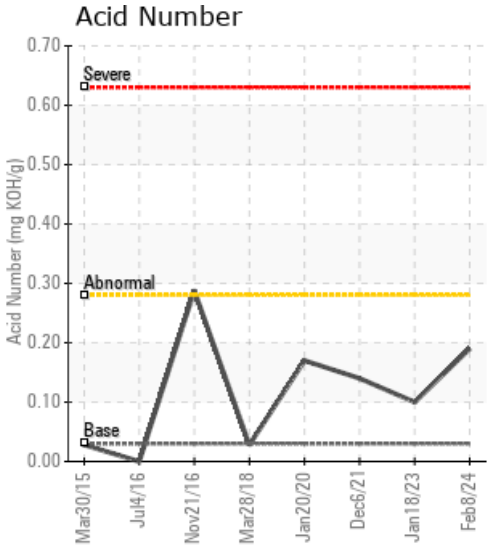
[13-25-80-16-W6M] H-5500-2 Train 2

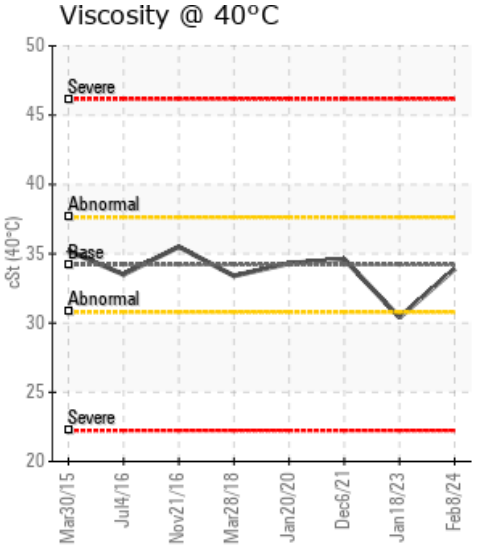
Customer: PTRHTF20156	System Information	Sample Information
TOURMALINE OIL 9920 98a Ave FORT ST. JOHN, BC V1J 1S2 CA Attn: Dorman Poole Tel: E-Mail: dorman.poole@tourmalineoil.com	System Volume: 70000 ltr Bulk Operating Temp: 464F / 240C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: RUSHTON HEAT MEDIUM	Lab No: 02619429 Analyst: Clinton Buhler Sample Date: 02/08/24 Received Date: 03/01/24 Completed: 03/06/24 Clinton Buhler Clinton.Buhler@HFSinclair.com

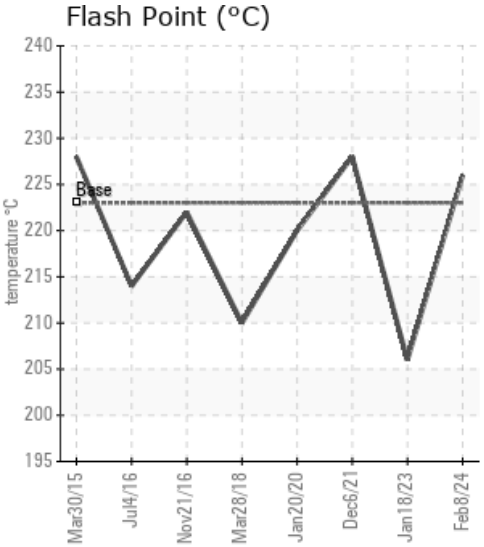
Recommendation: Sample results indicate the fluid is in suitable condition for continued service. Please re-sample in 12 months.

Comments: (GCD) 90% Distillation Point is abnormally high.

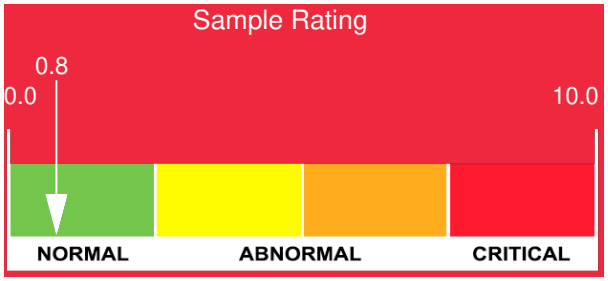
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
02/08/24	03/01/24	0.0y		439 / 226	31	33.9	0.19	0.281	708 / 376	809 / 431	928 / 498	2.29
01/18/23	01/26/23	8.0y	HEAT LOOP	403 / 206	152.2	30.4	0.10	0.168	709 / 376	813 / 434	916 / 491	3.53
12/06/21	03/10/22	9.0y	expansion tank	442 / 228	19.1	34.6	0.14	0.445	710 / 377	809 / 432	909 / 487	2.52
01/20/20	05/13/20	48.0y	DISCHARGE OFF PUMP	428 / 220	19.0	34.3	0.17	0.422	719 / 382	811 / 433	913 / 490	1.30
03/28/18	04/06/18	5.0y		410 / 210	0.00	33.4	0.028	0.016	709 / 376	806 / 430	906 / 486	1.59
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00

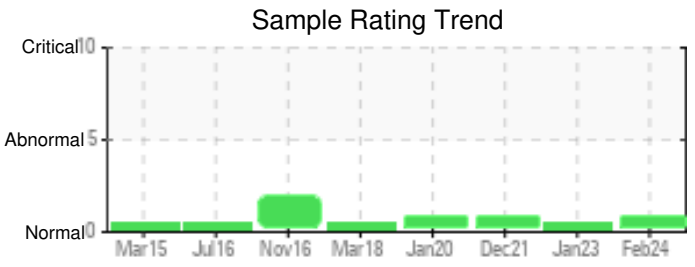






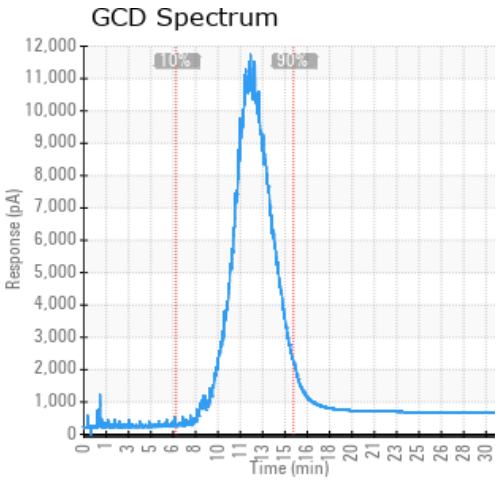
PETRO-CANADA LUBRICANTS

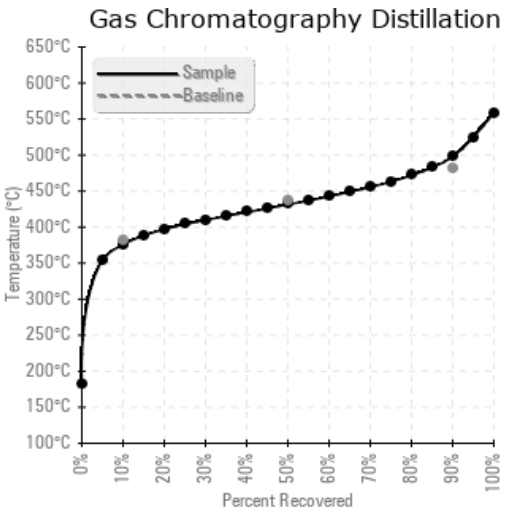


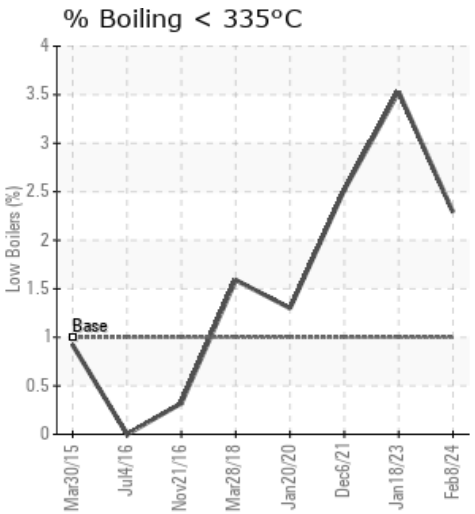


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
02/08/24	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0
01/18/23	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	4	0
12/06/21	10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	2	0
01/20/20	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	6	0
03/28/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Baseline Data			0	0						0			0	0					0				0	

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







Historical Comments

01/18/23	Sample results indicate the fluid is in suitable condition for continued service. Please re-sample in 12 months
12/06/21	Sample results indicate that the fluid is suitable for continued service. Solids content remains elevated; we usually alarm >0.5%. Solids can be related to degradation byproducts due to oxidation or thermal degradation. The other test results do not appear to support any concerning oxidation or thermal degradation. Please ensure sample is drawn from pump discharge (turbulent zone) and that sample valve and tubing is thoroughly purged prior to taking the sample. Please sample in 6 months
01/20/20	Sample results indicate that the fluid is suitable for continued service. However, Solids content is at 0.422%; we usually alarm >0.5%. Solids can be related to degradation byproducts due to oxidation or thermal degradation. The other test results do not appear to support any concerning oxidation or thermal degradation. At next sample interval, please ensure sample is drawn from pump discharge (turbulent zone) and that sample valve and tubing is thoroughly purged prior to taking the sample.Please sample in 6 months Pentane Insolubles levels are abnormally high.
03/28/18	sample results indicate that the thermal fluid is suitable for continued service.GCD %<335°C value of 1.59 is an indicator of thermal degradation.As part of good maintenance practice, perform regular venting of expansion tank to allow any low boiling vapors to be released.Re-sample in 12 months