

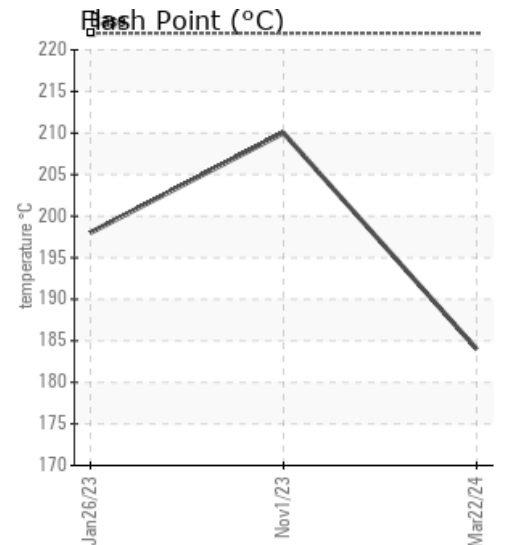
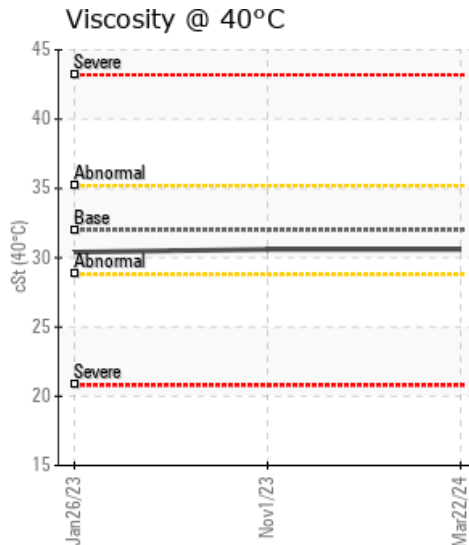
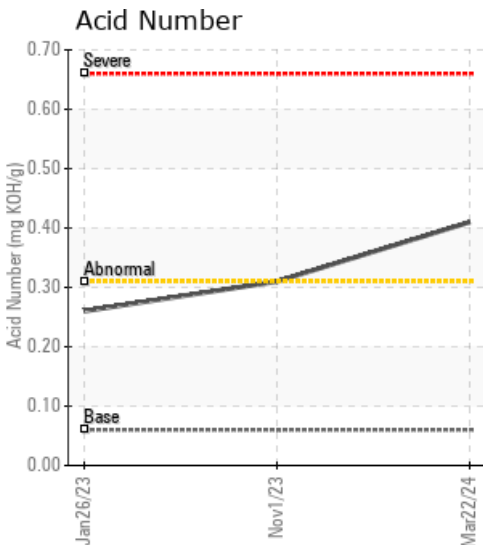
KILN #5 TOH

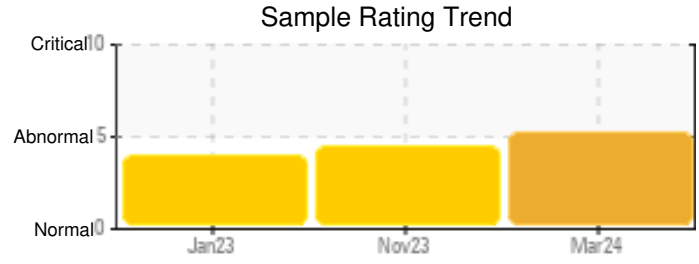
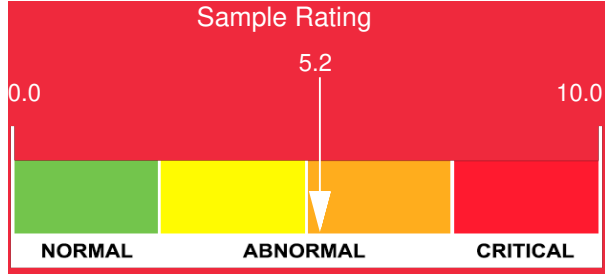
Customer: PTRHTF20274	System Information	Sample Information
Canfor Forest Products 5004-52 St Whitecourt, AB T7B 1N2 CA Attn: Dale Rolof Tel: (780)778-1169 E-Mail: dale.rolof@canfor.com	System Volume: 12500 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: MOBIL TERESSTIC 32 Make: WELLONS	Lab No: 02626502 Analyst: Peter Harteveld Sample Date: 03/22/24 Received Date: 04/03/24 Completed: 04/16/24 Peter Harteveld peter.harteveld@HFSinclair.com

Recommendation: The fluid is in a reasonable condition and suitable for further use provided the low boiler vapor will be removed via venting to atmosphere. A decrease in Flash Point combined with slightly low viscosity, low 10% GCD temperature and high % boil-off <335C. are all indications of thermal degradation of the fluid resulting in the formation of low boiler vapor. Increased AN and Fe content confirm fluid degradation. The Pentane Insoluble (solids) content has increased to 1.02% which is double the reportable limit. It is recommended to start filtration. If fluid change-out is considered, it is strongly recommended to clean/flush the system prior to filling with fresh fluid but at least flush to remove solids. Please re-sample in 6 months.

Comments: Pentane Insolubles levels are severely high. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low. COC Flash Point is marginally low.

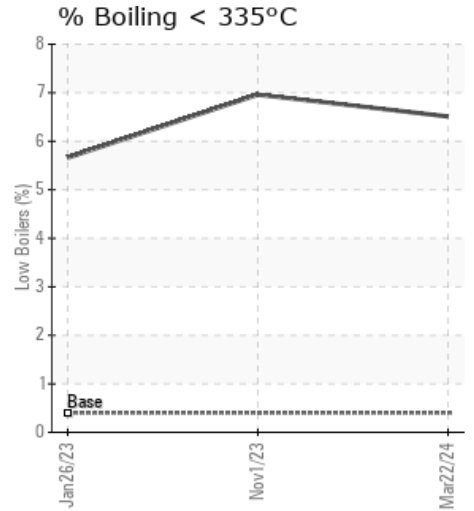
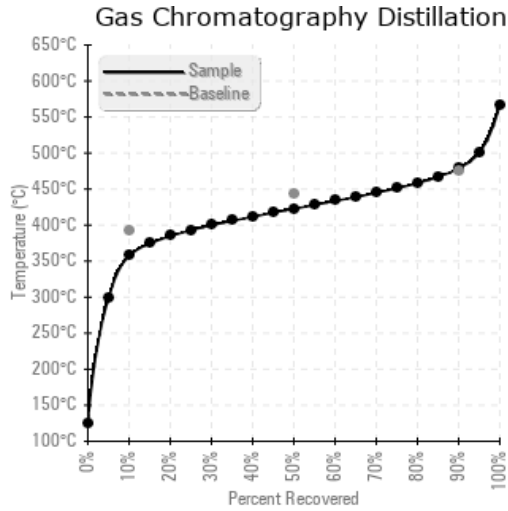
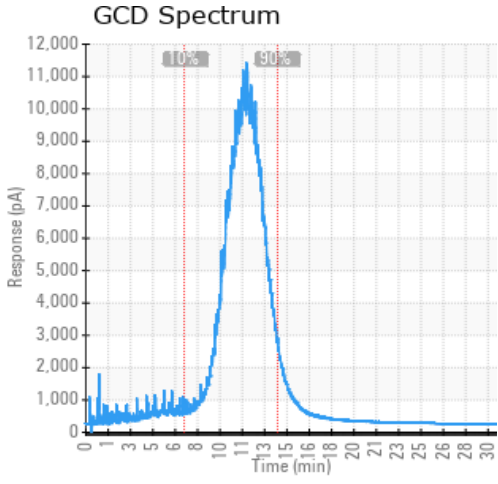
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/22/24	04/03/24	7.0y		363 / 184	175	30.6	0.41	1.02	676 / 358	793 / 423	894 / 479	6.51
11/01/23	11/10/23	6.0y	HIGH POINT BLEED	410 / 210	28.9	30.6	0.31	0.654	672 / 355	794 / 423	895 / 480	6.96
01/26/23	02/03/23	6.0y	high point bleed	388 / 198	7.7	30.4	0.26	0.487	684 / 362	796 / 424	895 / 480	5.66
Baseline Data				432 / 222		32.0	0.06		738 / 392	828 / 442	887 / 475	0.4





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
03/22/24	94	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	4	6
11/01/23	49	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	3
01/26/23	33	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Baseline Data			0	0						0			0	0				0	0				0	

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



Historical Comments

11/01/23	The fluid is in a reasonable condition and suitable for further use provided the low boiler vapor content (GCD% <335C = 6.96%) will be lowered to a more acceptable level by regular venting of this vapor to atmosphere. A further increase in low boiler vapor content will result in heat medium pump suction side problems (cavitation) and fluid flow stagnation at a later stage. The cause of increasing low boiler vapor content is thermal degradation of the fluid. An indication of this (besides GCD% <335C) is a decrease in 10% GCD temperature. Degradation of the fluid is causing the AN to increase which results in corrosion. This is indicated by an increase in Fe content. The Pentane Insoluble (solids) content has exceeded the reportable limit of 0.5%. It's currently at 0.654%. To avoid plugging of heat exchangers, maintain system efficiency and limit wear of heat medium pump mechanical seal faces it is advised to lower the solids content via filtration of the fluid. Please re-sample in 6 months. Pentane Insolubles levels are severely high. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low.
01/26/23	The fluid is in a reasonable condition and suitable for further use. Commenting on this fill of Mobil Teresstic 32 is complicated by not having all baseline reference data. The AN of the fresh oil is unknown. The AN of the fluid in service is 0.26. As an absolute number this is slightly elevated but not high. The Fe content of 33 ppm is an indication of this. There is only a moderate amount of corrosion taking place as a result of the acidity of the fluid. The low boiler vapor content (GCD% <335C) of the fluid is elevated at 5.66%. This is likely the result of thermal degradation of the fluid. A significant decrease in 10% GCD temperature confirms this. If there is a natural gas blanket at high pressure on the fluid, it can have the same effect. The bulk fluid temperature is listed as 50 degrees C. This must be incorrect. Please correct when sending in the next sample. Lastly the Pentane Insoluble (solids) content of the fluid is elevated at 0.487%. (0.5% is the reportable limit) It is recommended to plan filtration of the fluid. To reduce the low boiler vapor content of the fluid it is advised to vent off the vapor and make venting part of preventative maintenance. Please resample in 6 months. Pentane Insolubles levels are abnormally high. Acid Number (AN) is severely high.

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