

[SW 10-53-18W5] EDSON FOREST PRODUCTS

Customer: PTRHTF20090
 Edson Forest Products (Div. of West...
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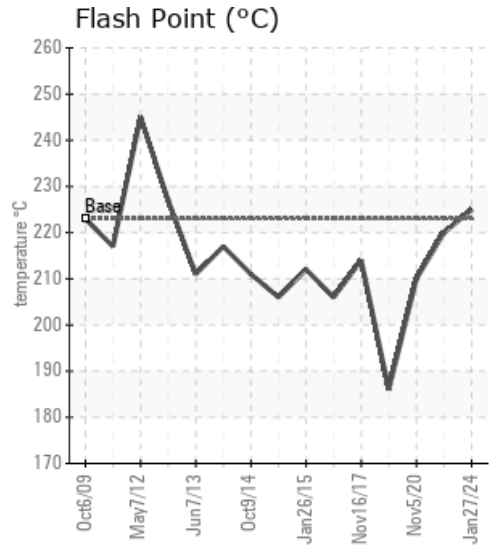
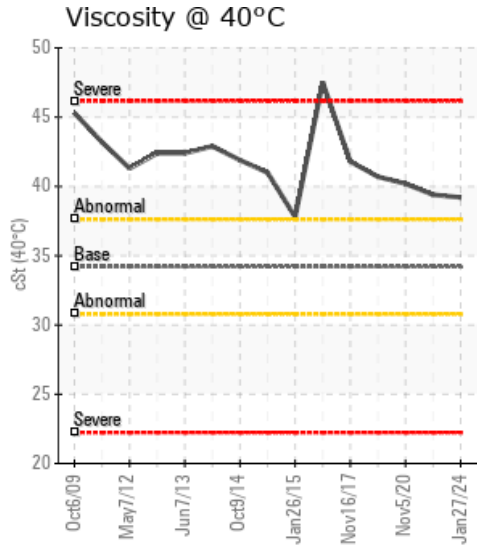
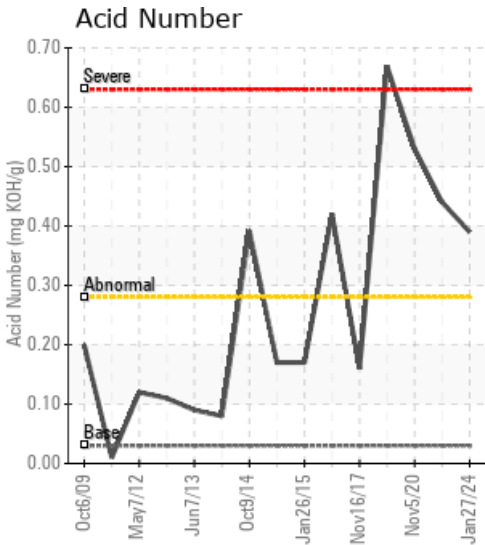
System Information
 System Volume: 60000 ltr
 Bulk Operating Temp: 495F / 257C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA PETRO-THERM
 Make: WELLONS

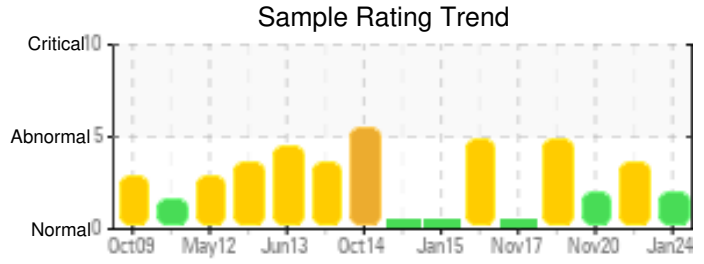
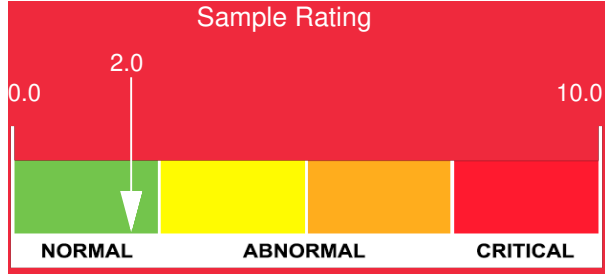
Sample Information
 Lab No: 02617532
 Analyst: Peter Harteveld
 Sample Date: 01/27/24
 Received Date: 02/22/24
 Completed: 02/27/24
 Peter Harteveld
 peter.harteveld@HFSinclair.com

Recommendation: The fluid is in a reasonable condition and suitable for further use. The Acid Number, viscosity and 90% GCD temperature are elevated. This is an indication of fluid oxidation. For a fluid which has been in service for 19 years the rate of oxidation is acceptable. Please re-sample in 12 months.

Comments: Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.

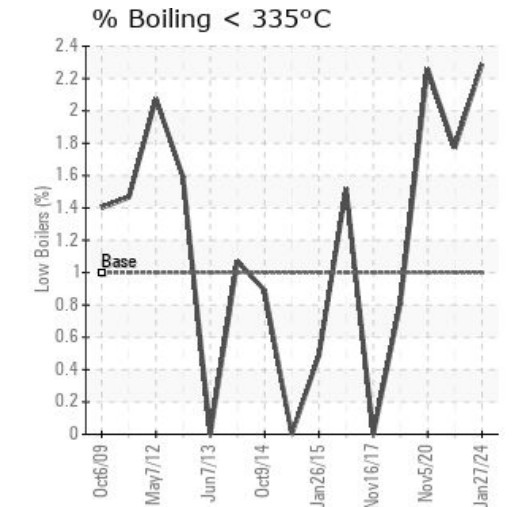
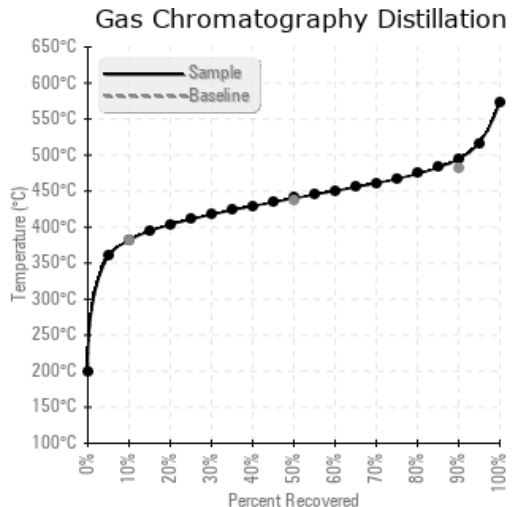
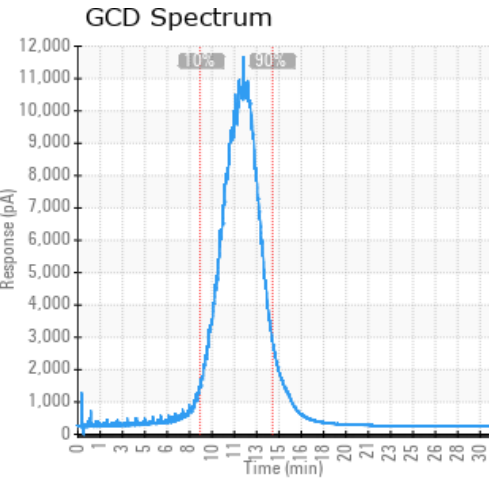
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/27/24	02/22/24	19.0y		437 / 225	6	39.2	0.39	0.187	719 / 382	824 / 440	922 / 495	2.29
09/14/21	09/21/21	16.0y	Primary oil pump #1	428 / 220	49.5	39.4	0.44	0.713	726 / 385	826 / 441	920 / 493	1.77
11/05/20	11/12/20	15.0y	#1 Primary Pump	410 / 210	26.0	40.2	0.53	0.197	723 / 384	825 / 441	921 / 494	2.26
05/23/19	05/28/19	13.0y		367 / 186	47.5	40.7	0.669	0.280	722 / 383	826 / 441	924 / 496	0.81
11/16/17	11/23/17	15.0y		417 / 214	8.1	41.8	0.16	0.192	715 / 380	802 / 428	905 / 485	0.00
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
01/27/24	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09/14/21	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/05/20	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/23/19	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
11/16/17	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	
09/14/21	The current fluid has very similar viscosity, flash point and distillation points as the last sample. There is a mild fluid oxidation. It is good to see that Acid Number (AN) has been reduced over the last two years, but the solid content has been increased a lot. The water contamination is minimal. Overall, the fluid is suitable for further operation. Please take one sample in 12 months to monitor the conditions. (GCD) 90% Distillation Point is marginally high.
11/05/20	The fluid has normal flash point, and minimum water contamination. The solid content is also normal. The elevated TAN and oil viscosity indicate there are moderate oil oxidation or the wrong oil contamination. The high fluid viscosity will reduce the overall heat transfer efficiency. The 15 years old oil fluid is still suitable for further operation. Please take one sample in 12 months to monitor the conditions.
05/23/19	Depending on the actual oil service, (oil service dropped from 15 years to 13 years?) the acid number has dramatically increased, and is a measure of the acidic compounds in the oil. Increases in the acid number are likely due to the formation of oxidation by products in the oil. This value will increase exponentially once the process begins. Tendencies are for sludge and deposits to increase and corrosion to occur if the fluid continues to be utilized beyond its limits. This current level may be an indicator that the oil may have reached the end of its useful life. The flash Point, is the lowest temperature at which the fluids vapor will momentarily ignite when contacted by an ignition source. Reduction is typically associated with thermal degradation of the heat transfer oil or possibly contamination. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is marginally high. COC Flash Point is marginally low.
11/16/17	Results are normal

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