

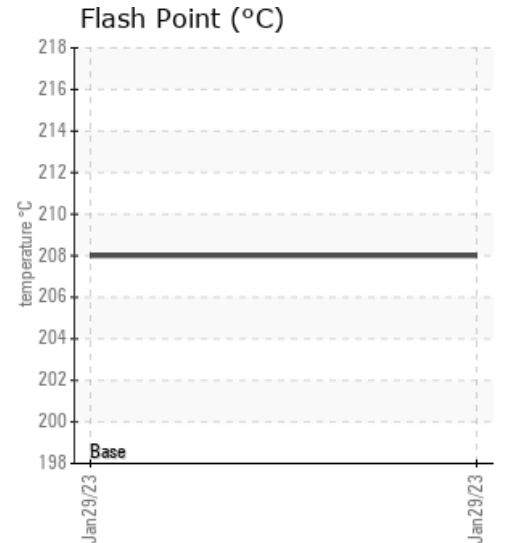
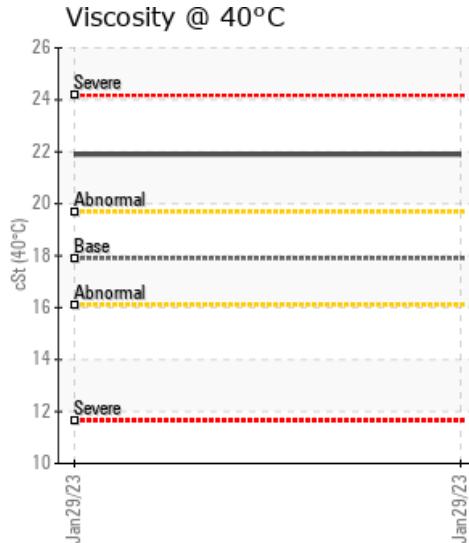
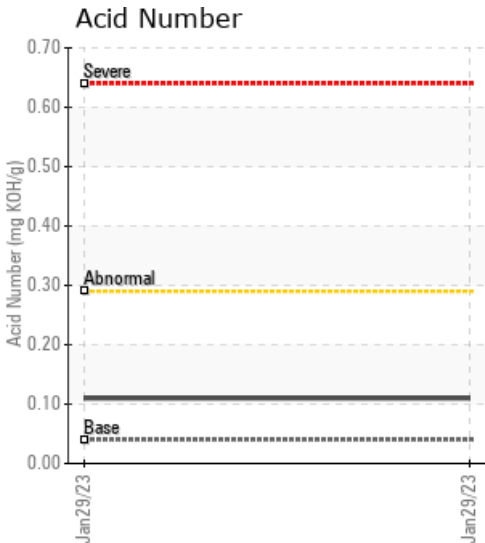
WAUPACA FOUNDRY Plant 2/3

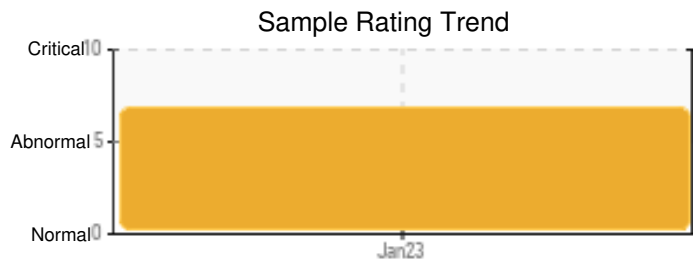
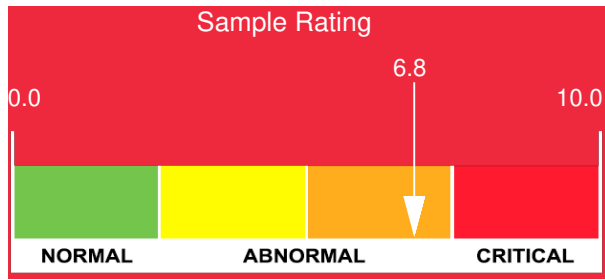
Customer: PTRHTF10041	System Information	Sample Information
KUTTNER LLC. 211 N FRANKLIN ST PORT WASHINGTON, WI 53074 US Attn: DAVID ZINKY Tel: (262)284-4483 E-Mail: d.zinky@kuttner.com	System Volume: 11000 gal Bulk Operating Temp: 540F / 282C Heating Source: Blanket: Fluid: PARATHERM NF Make: KUTTNER/WUERZ	Lab No: 02543071 Analyst: Yvette Trzcinski Sample Date: 01/29/23 Received Date: 03/03/23 Completed: 03/16/23 Yvette Trzcinski yvette.trzcinski@HFSinclair.com

Recommendation: viscosity, flash point, and GCD boiling points of the fluid has increased - appears the system has been topped up with a different heat transfer fluid other than Paratherm NF. Pentane Insolubles (solids) show signs of fluid degradation in the system. It is important to understand if this is a mix of two different heat transfer. continue to monitor and resample in 6 months

Comments: (GCD) 10% Distillation Point is severely high. (GCD) 50% Distillation Point is severely high. (GCD) 90% Distillation Point is severely high. COC Flash Point is marginally high.

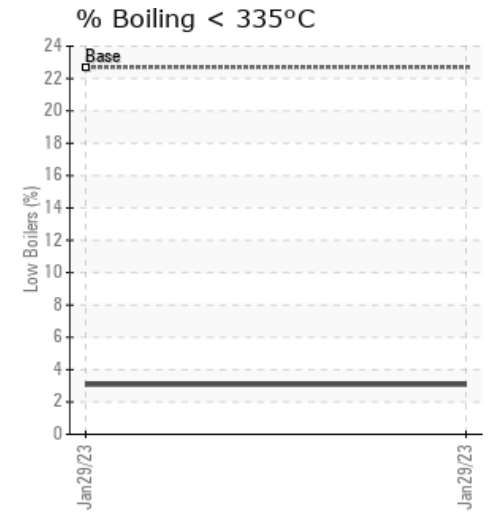
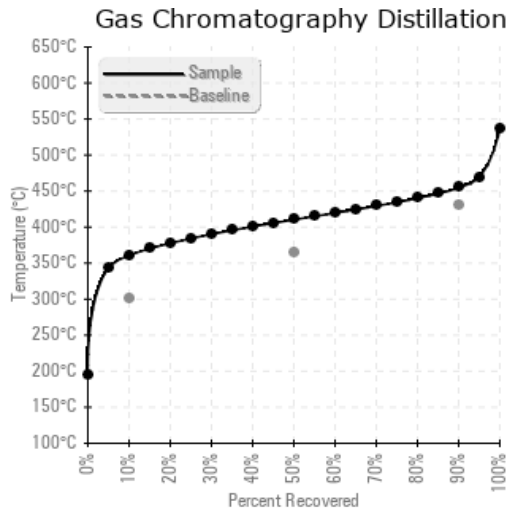
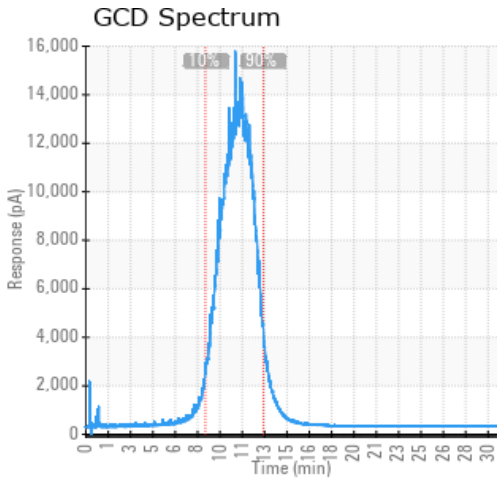
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/29/23	03/03/23	22.0y	main pump	406 / 208	75.8	21.9	0.11	0.356	681 / 361	771 / 410	850 / 455	3.08
Baseline Data				342 / 172		17.9	0.04		572 / 300	689 / 365	808 / 431	22.7





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
01/29/23	100	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	7	0	0	1
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

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