

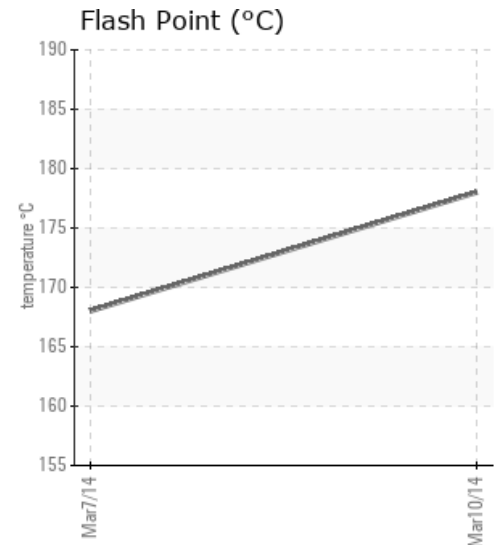
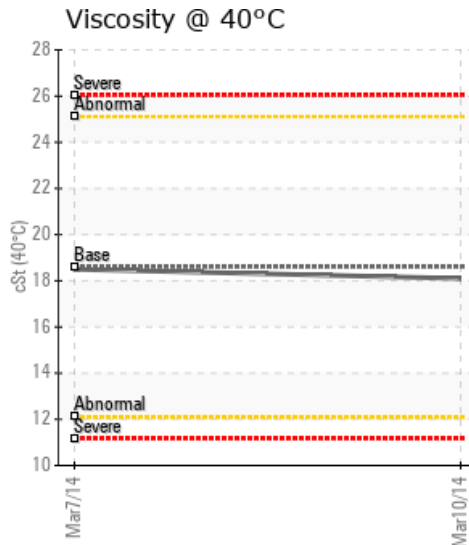
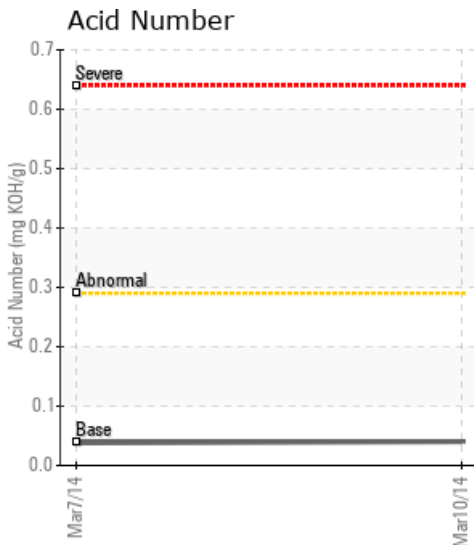
4.0 HYDROGENATION

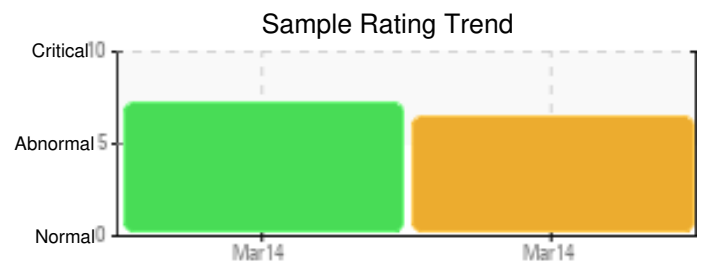
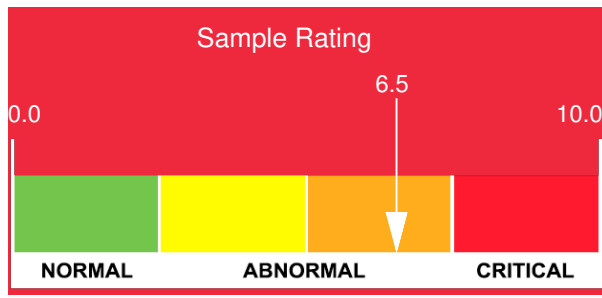
Customer: PTRHTF10093	System Information	Sample Information
REC GROUP 3322 ROAD N N.E. MOSES LAKE, WA 98837 USA Attn: Sam Bright Tel: (509)766-8902 E-Mail: sam.bright@recsilicon.com	System Volume: 50000 gal Bulk Operating Temp: 450F / 232C Heating Source: Blanket: Fluid: PARATHERM NF Make: COEN	Lab No: 01902842 Analyst: Gaston Arseneault Sample Date: 03/10/14 Received Date: 03/17/14 Completed: 04/09/14 To discuss this report contact Gaston Arseneault at 973-986-6503

Recommendation: Something was wrong with the sampling dates on 2 samples of Paratherm NF, this sample is the oldest date yet it had the least amount of running hours. It is possible that some of the flags with the GCD distillation data are caused by outdated fresh oil values for this oil. Next time, pls send a sample of fresh Paratherm NF so we can update our system and make more accurate diagnosis. Overall the fluid might be showing mild signs of oxidation (high GCD 90%).

Comments: (GCD) % < 335°C is severely high. (GCD) 90% Distillation Point is severely high. COC Flash Point is severely high. (GCD) 10% Distillation Point is marginally low.

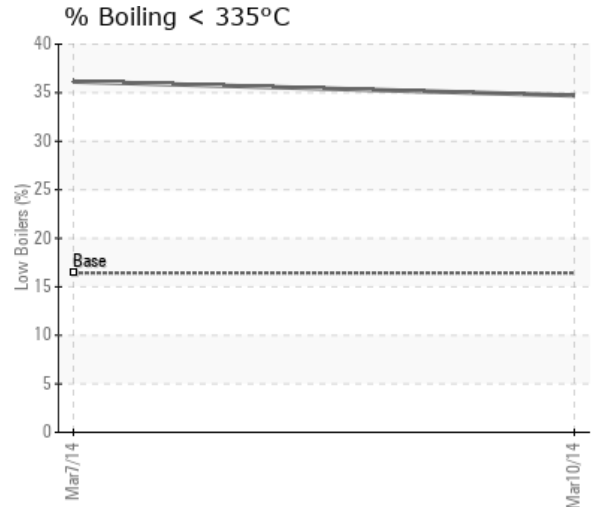
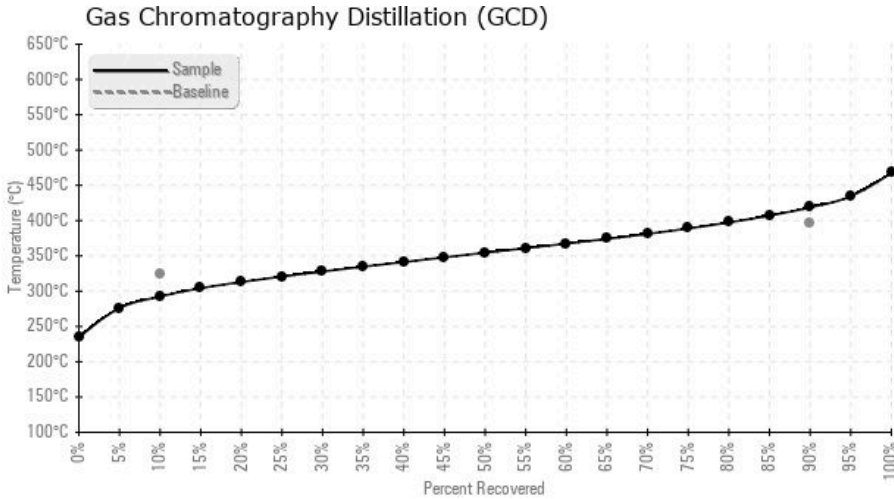
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/10/14	03/17/14	6h	FILTRATION UNIT	352 / 178	23.6	18.1	0.040	0.135	558 / 292	670 / 355	786 / 419	34.71
03/07/14	03/26/14	72h	FROM FILTRATION UNIT	334 / 168	26.0	18.5	0.038	0.132	553 / 290	667 / 353	782 / 417	36.15
Baseline Data				32 / 0		18.6	0.04		615 / 324		747 / 397	16.42





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
03/10/14	17	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0
03/07/14	31	0	0	0	0	0	0	1	0	0	5	3	0	0	0	0	0	0	0	0	1	0	1	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

03/07/14	Something was wrong with the sampling dates on 2 samples of Paratherm NF, this sample is the most recent yet it had the oldest date. It is possible that some of the flags with the GCD distillation data are caused by outdated fresh oil values for this oil. Next time, pls send a sample of fresh Paratherm NF so we can update our system and make more accurate diagnosis. Overall the fluid might be showing mild signs of oxidation (high GCD 90%). (GCD) % < 335°C is severely high. COC Flash Point is severely high. (GCD) 90% Distillation Point is abnormally high. (GCD) 10% Distillation Point is marginally low.
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