

SYSTEM #1

Customer: PTRHTF10073
 SHEPHERD COLOR
 4539 DUES DRIVE
 CINCINNATI, OH 45246 US
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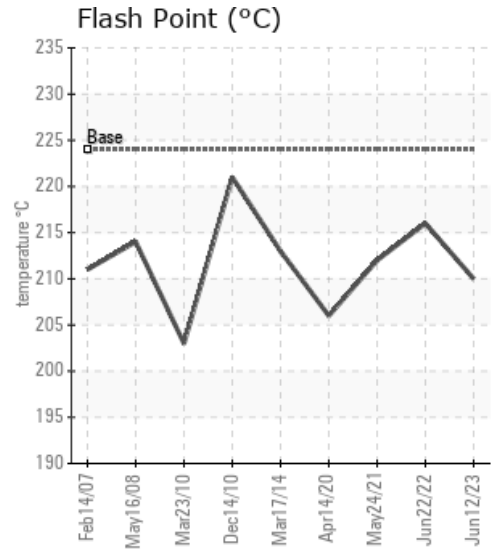
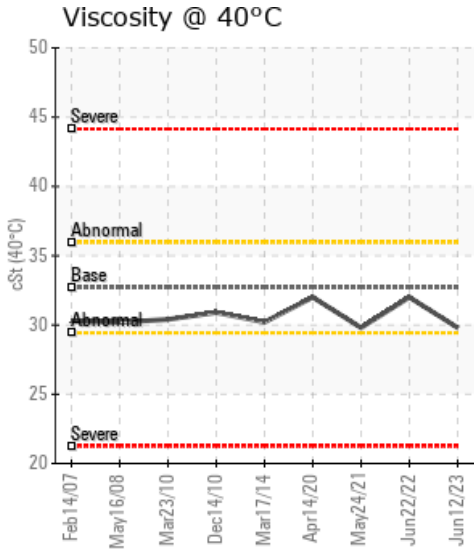
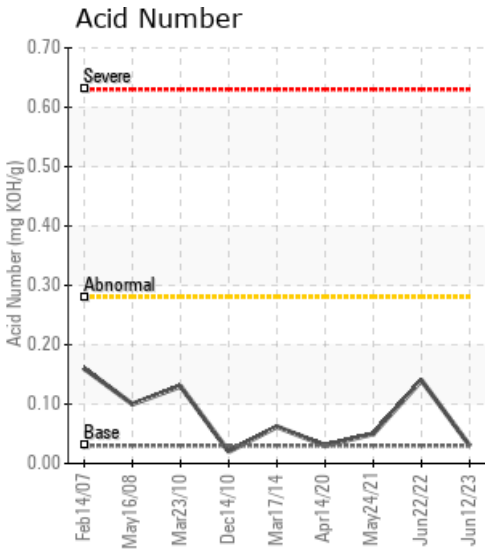
System Information
 System Volume: 550 gal
 Bulk Operating Temp: 420F / 216C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA CALFLO AF
 Make: FIRST THERMAL

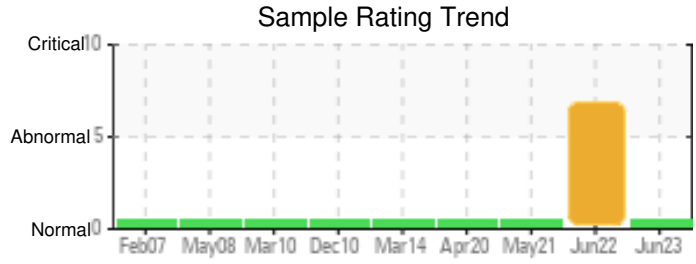
Sample Information
 Lab No: 02567440
 Analyst: Joe Goecke
 Sample Date: 06/12/23
 Received Date: 06/29/23
 Completed: 07/04/23
 Joe Goecke
 Joe.goecke@HFSinclair.com

Recommendation: Fluid is in great condition. Actually had decreases in water and Acid Number showing good stability. Continue to operate and resample next year.

Comments:

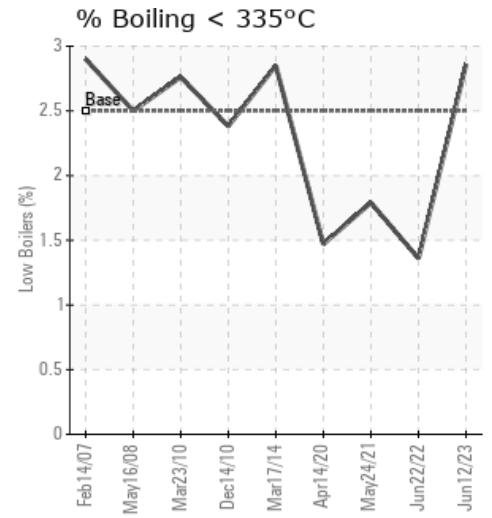
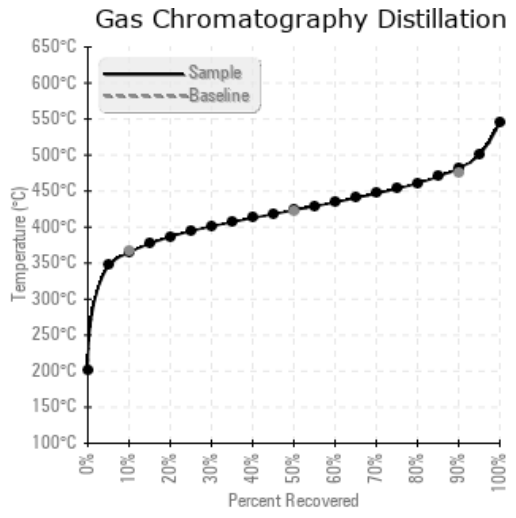
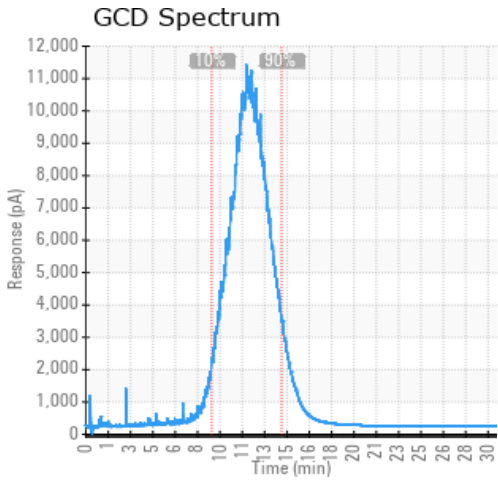
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/12/23	06/29/23	9.0y		410 / 210	22.3	29.8	0.03	0.043	689 / 365	794 / 423	899 / 482	2.86
06/22/22	06/30/22	8.0y	before inlet	421 / 216	92.0	32.0	0.14	0.381	711 / 377	809 / 432	912 / 489	1.36
05/24/21	06/01/21	7.0y	Reactor outlet	414 / 212	11.5	29.8	0.05	0.091	687 / 364	781 / 416	893 / 478	1.79
04/14/20	04/28/20	5.3y	PUMP AND REACTOR	403 / 206	5.5	32.0	0.03	0.090	699 / 370	796 / 424	896 / 480	1.47
03/17/14	03/26/14	9.3y		415 / 213	17.2	30.2	0.062	0.138	687 / 364	791 / 422	880 / 471	2.85
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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
06/12/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	1
06/22/22	40	0	0	3	0	0	0	0	0	0	7	120	1	0	0	0	4	0	0	0	1	0	249	1
05/24/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
04/14/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
03/17/14	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	24	1
Baseline Data			0	0						0		0	0					0					270	

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



Historical Comments

06/22/22	Very high sodium reading. will confirm at next sample interval but all other parameters are good. sodium could possibly be from sweat or other inadvertant contamination. Sodium ppm levels are severely high. (GCD) 90% Distillation Point is marginally high.
05/24/21	Sample is in excellent condition. Continue to use and resample at next scheduled interval.
04/14/20	All fluid measurements in great condition. Continue to use product as normal and resample a next scheduled interval.
03/17/14	Sample appears to be suitable for continued operation. Sample at next normal interval.

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