

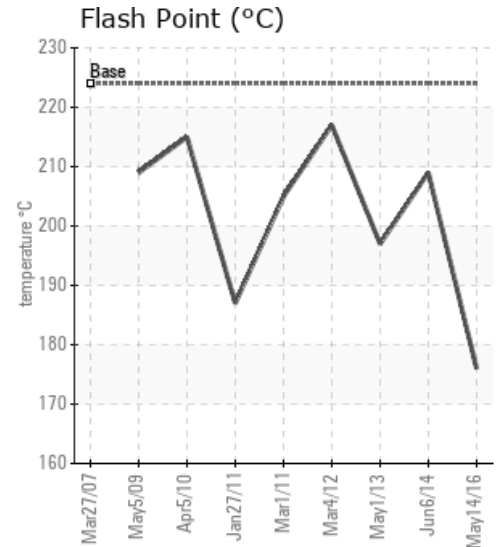
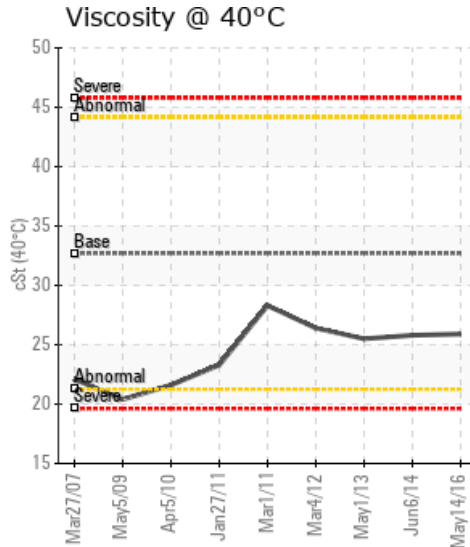
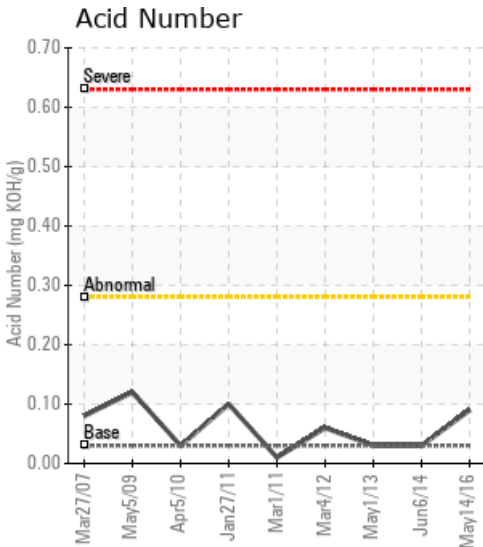
LINE 1 FILLER HEATER SYSTEM

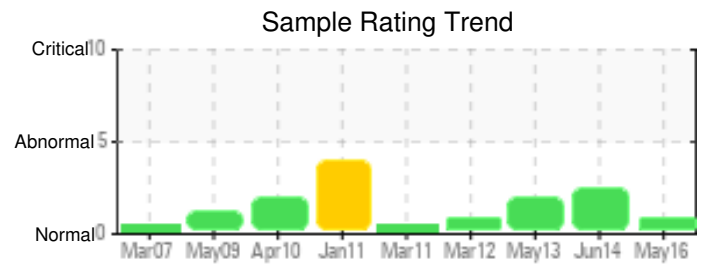
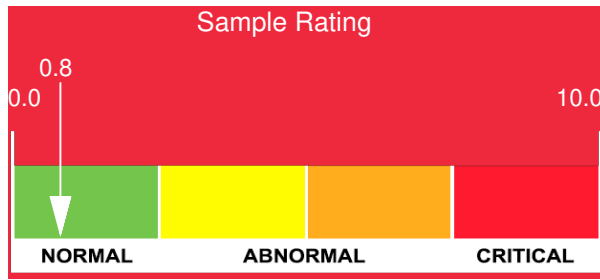
Customer: PTRHTF10069	System Information	Sample Information
CERTAINEED - SAINT GOBAIN 3303 EAST 4TH AVENUE SHAKOPEE, MN 55379 USA Attn: Patrick Wallace Tel: E-Mail: patrick.wallace@saint-gobain.com	System Volume: 5670 gal Bulk Operating Temp: 428F / 220C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02073862 Analyst: Neil Buchanan Sample Date: 05/14/16 Received Date: 05/24/16 Completed: 05/27/16 Neil Buchanan neil.buchanan@hollyfrontier.com

Recommendation: COC Flash Point is abnormally low. Some low boiler formation is evident in the GCD. Other properties look good. Resample next interval to monitor.

Comments: COC Flash Point is abnormally 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	%
05/14/16	05/24/16	0.0y	MAIN SYSTEM FLOW	349 / 176	1.8	25.9	0.090	0.046	682 / 361	787 / 419	880 / 471	3.93
06/06/14	06/17/14	0.0y	MAIN FLOW NEAR PUMP	408 / 209	74.8	25.8	0.03	0.054	662 / 350	761 / 405	861 / 460	5.50
05/01/13	05/15/13	0.0y	MAIN SYSTEM FLOW	387 / 197	53.0	25.5	0.030	0.036	714 / 379	783 / 417	831 / 444	0.00
03/04/12	03/14/12		MAIN SYSTEM FLOW	423 / 217	64	26.4	0.06	0.019	688 / 365	779 / 415	877 / 469	2.123
03/01/11	03/17/11			401 / 205	93	28.3	0.01	0.162	689 / 365	781 / 416	880 / 471	1.982
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

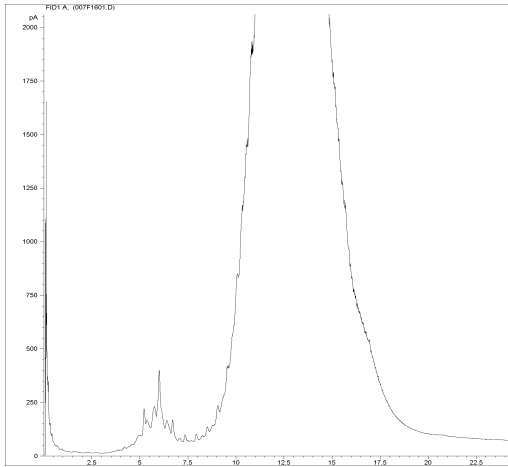




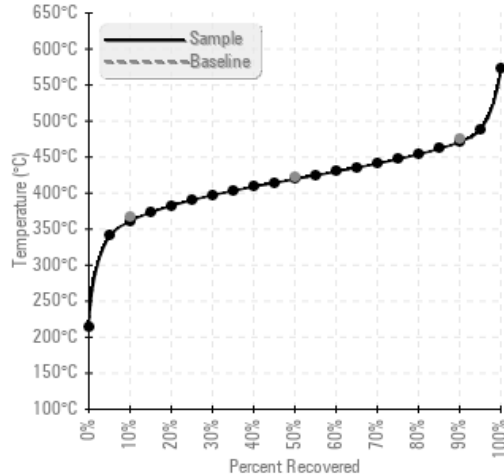
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/14/16	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0
06/06/14	33	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	0	60	1
05/01/13	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	52	0
03/04/12	178	0	0	1	1	0	1	0	0	0	6	0	0	0	0	0	1	0	4	2	7	1	35	2
03/01/11	93	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	2	12	0	140	2
Baseline Data			0	0						0			0	0					0				270	

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

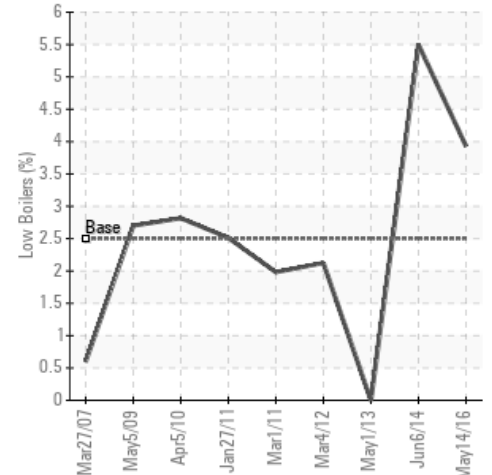
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

06/06/14	Results appear normal since the last sample and we do not see any concerning trend. Re-sample same time next year. (GCD) 90% Distillation Point is marginally low.
05/01/13	Fluid is in good condition and suitable for further use. Please continue to sample the system at the regular interval (9-12 months). The computer continues to flag some of the properties as it compares the oil against the Callo AF reference in the database. (GCD) 90% Distillation Point is severely low.
03/04/12	The reason why some data is flagged and color coded this time and it did not in the past is because the lab previously compared results against Mobiltherm, while now they probably changed it to Callo AF based on what was indicated on the paperwork. The oil condition looks excellent at this time. We will remind you when the next round of sampling is due.
03/01/11	The iron content is slightly high but I would not recommend any major action based on this result alone. Other properties look good. Based on this phosphorous content (additives), we estimate the system contains about 50% Callo AF. Re-sample at next normal interval.

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