

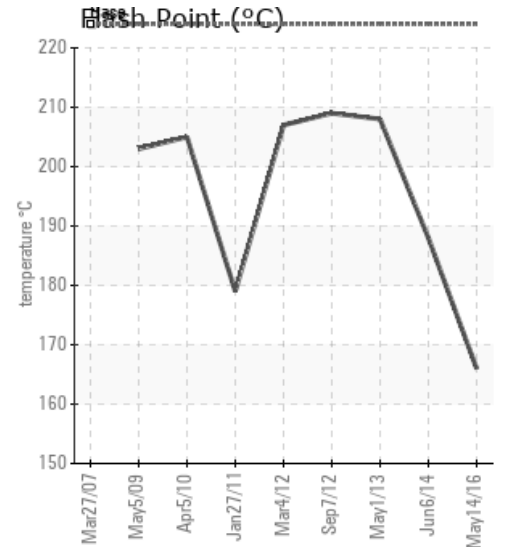
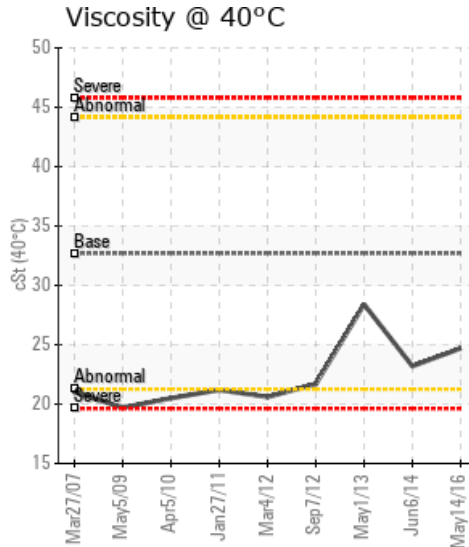
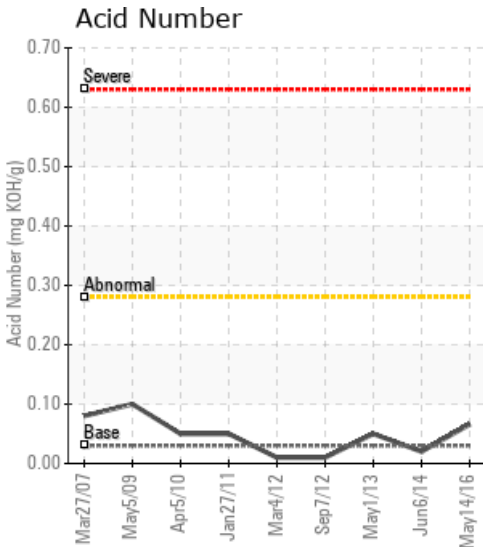
LINE 2 FILLER HEATER SYSTEM

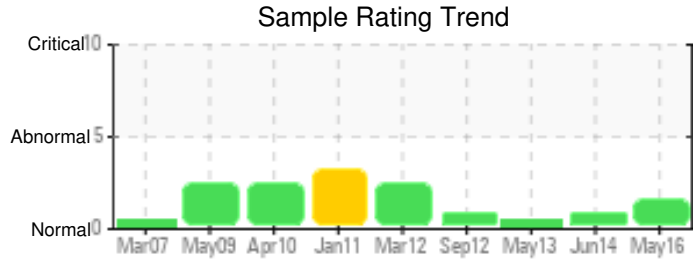
Customer: PTRHTF10069	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 3303 EAST 4TH AVENUE SHAKOPEE, MN 55379 USA Attn: Patrick Wallace Tel: E-Mail: patrick.wallace@saint-gobain.com	System Volume: 5670 gal Bulk Operating Temp: 428F / 220C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02073863 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. GCD % at 335C is marginally high at 6.19% and should consider venting. Other properties look good. Resample next interval to monitor.

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	%
05/14/16	05/24/16	0.0y	MAIN SYSTEM FLOW	331 / 166	2.3	24.7	0.066	0.080	665 / 352	773 / 411	866 / 463	6.19
06/06/14	06/17/14	0.0y	MAIN FLOW NEAR PUMP	370 / 188	3.2	23.2	0.02	0.034	669 / 354	783 / 417	888 / 475	6.18
05/01/13	05/15/13	0.0y	MAIN SYSTEM FLOW	406 / 208	54.3	28.4	0.05	0.112	688 / 365	774 / 412	874 / 468	1.07
09/07/12	09/12/12		MIAN FLOW NEAR MAIN	408 / 209	21	21.7	0.01	0.06	683 / 362	762 / 405	852 / 456	2.812
03/04/12	03/14/12		MAIN SYSTEM FLOW	405 / 207	45	20.6	0.01	0.034	684 / 362	759 / 404	845 / 452	2.751
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

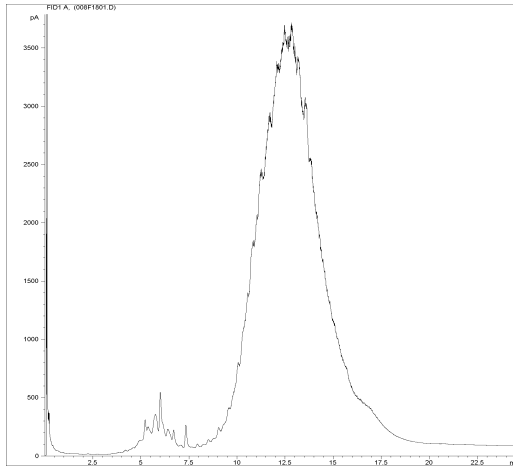




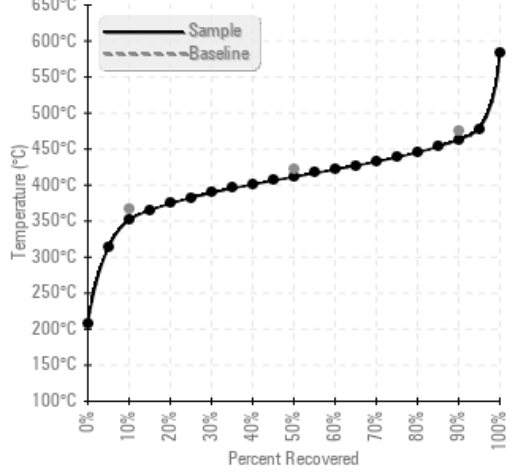
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/14/16	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0
06/06/14	6	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	14	0	69	0
05/01/13	28	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	6	0	163	1
09/07/12	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	34	1
03/04/12	5	0	0	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	1	1	13	0
Baseline Data			0	0						0		0	0					0					270	

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

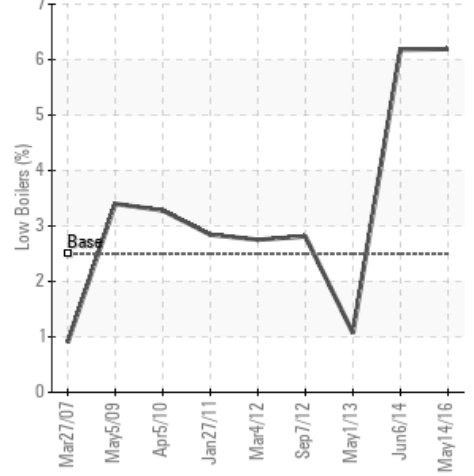
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments	
06/06/14	The oil carries a certain amount of low boilers. We recommend to vent them out and replace lost volume with fresh oil addition. COC Flash Point is marginally low.
05/01/13	Overall the fluid is in excellent condition. We see a jump in viscosity, but also an increase in the additive concentration that is likely due to an addition of fresh Calflo AF. Please continue to sample at the regular interval (9-12 months).
09/07/12	The oil appears to be similar to previous samples. We do notice a slight viscosity increase but the additives also went up so this is likely due to a small addition of fresh Calflo AF. Overall there is no apparent changes to this fluid besides what is observed due to the addition.
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 Calflo 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.

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