

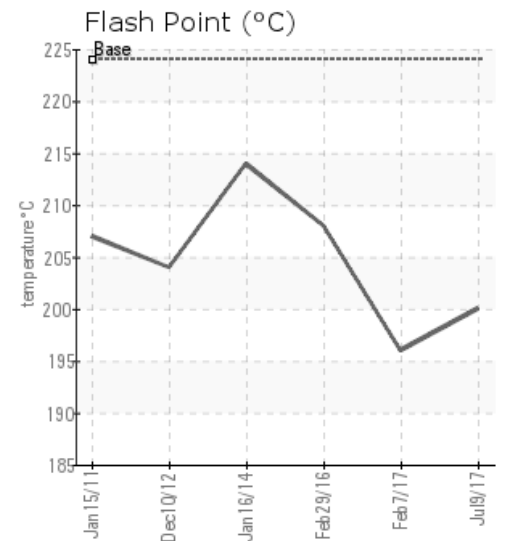
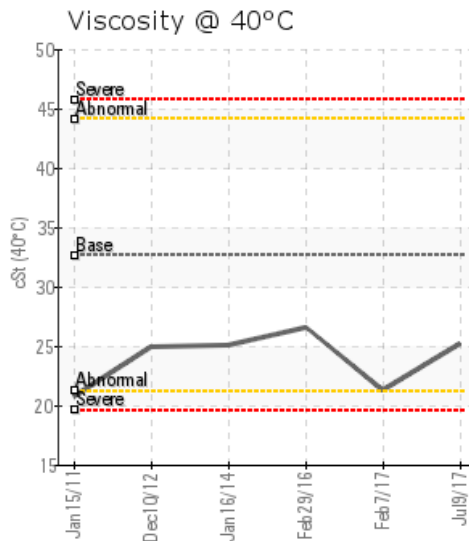
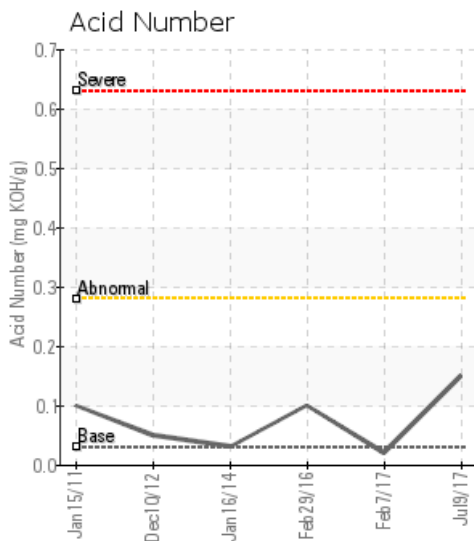
## MODIFIED ROOM

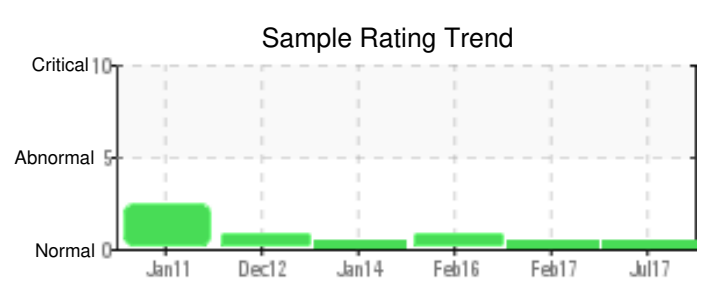
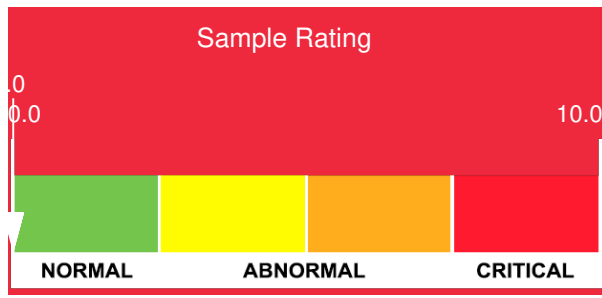
Customer: PTRHTF10059	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 11519 US RT 250 N MILAN, OH 44846 USA Attn: DAVE BLAKELY Tel: (419)541-0843 E-Mail: dave.l.blakely@saint-gobain.com	System Volume: 320 gal Bulk Operating Temp: 520F / 271C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: FIRST THERMOL	Lab No: 02160210 Analyst: Yvette Trzcinski Sample Date: 07/09/17 Received Date: 07/28/17 Completed: 07/31/17 To discuss this report contact Yvette Trzcinski at (262)933-0718

Recommendation: Viscosity has stabilized from last sample flash point in acceptable ranges, fluid appears to be free of contamination and does not appear to have degraded from last samples. Re sample in 6 months to verify fluid condition.

Comments:

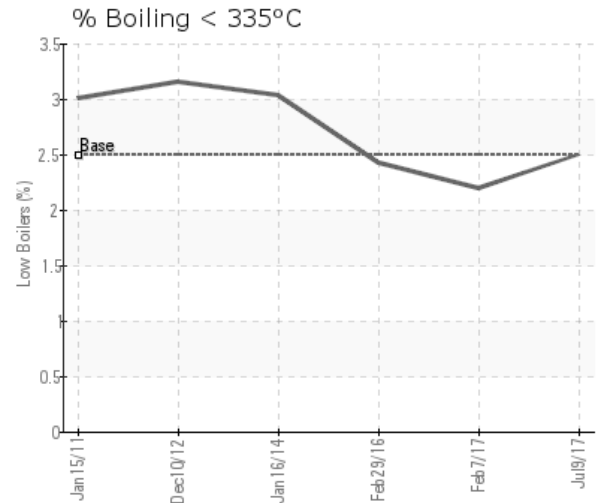
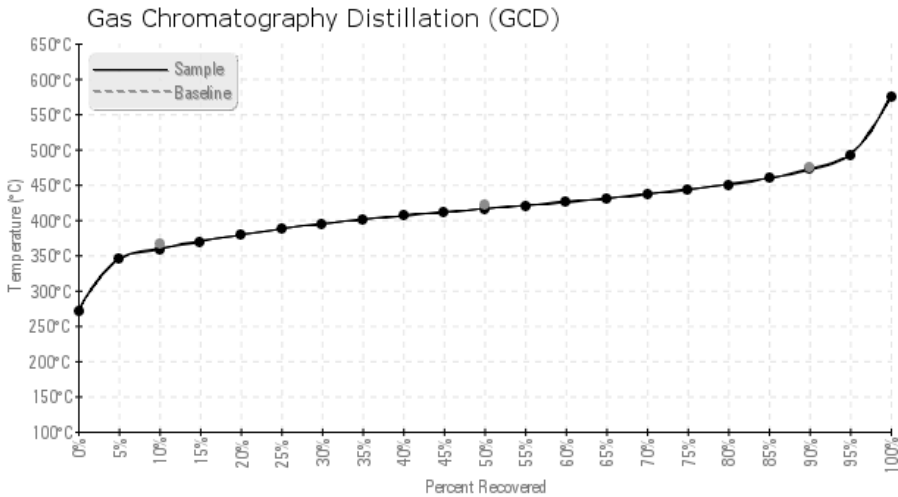
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
07/09/17	07/28/17	0h		392 / 200	19.7	25.2	0.15	0.032	678 / 359	780 / 416	881 / 472	2.50
02/07/17	02/15/17	0h	SIDE STREAM FLTR PRT	385 / 196	11.7	21.3	0.02	0.030	678 / 359	779 / 415	883 / 473	2.20
02/29/16	03/10/16	0h	BY HEADER	406 / 208	6.0	26.6	0.10	0.314	680 / 360	787 / 420	908 / 487	2.43
01/16/14	01/23/14	0h	DRIP LEG BY PUMP	417 / 214	11.9	25.1	0.03	0.014	672 / 355	776 / 413	870 / 466	3.03
12/10/12	01/17/13	0h	123516	399 / 204	11.3	24.9	0.05	0.017	668 / 354	769 / 410	861 / 460	3.16
01/15/11	01/18/12		MODIFIED ROOM	405 / 207	31	20.7	0.1	0.008	668 / 354	761 / 405	851 / 455	3.001
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
07/09/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	34	0
02/07/17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	34	0
02/29/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0
01/16/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0
12/10/12	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	14	0
01/15/11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
<b>Baseline Data</b>			0	0						0			0	0					0				270	

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



Historical Comments	
02/07/17	The viscosity of the fluid has dropped by 20% from the last sample a year ago. The flash point remains strong however. The overall condition looks good and there is no apparent contamination, therefore we can speculate that the drop in viscosity comes from operating the fluid in a way that promotes thermal degradation. We suggest more frequent sampling on this system, next quarter and every 6 months after that.
02/29/16	Oil is in good condition. We are beginning to see some slight oxidation but it is not an issue at this time. Re-sample at next scheduled interval. (GCD) 90% Distillation Point is marginally high.
01/16/14	The fluid has not changed much since the last test in June 2013. It is still a mixture of Therminol 55 and Calflo AF. Everything looks normal. Re-sample as part of your PM in another 6 months or so.
12/10/12	The oil is in good condition as it appear to have received a little Calflo AF since the last sample. Please submit a sample annually. (GCD) 90% Distillation Point is marginally low.
01/15/11	This is the first samples we receive under our program so we are building the database here so we can examine trends. The oil looks significantly different than Calflo AF values because there is very little Calflo AF in this fluid, we suspect is mainly what looks like Therminol 55. As the systems are topped-up the numbers will start looking more like Calfo AF. The oil condition is godo at this point, no action required. We suggest sampling twice per year, yearly mininum. Thank you for your business.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.