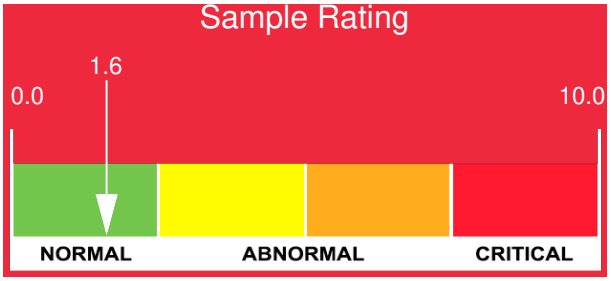
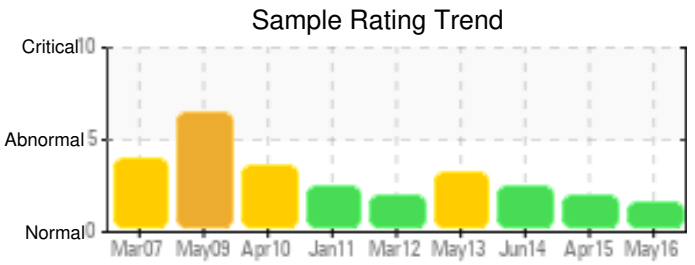




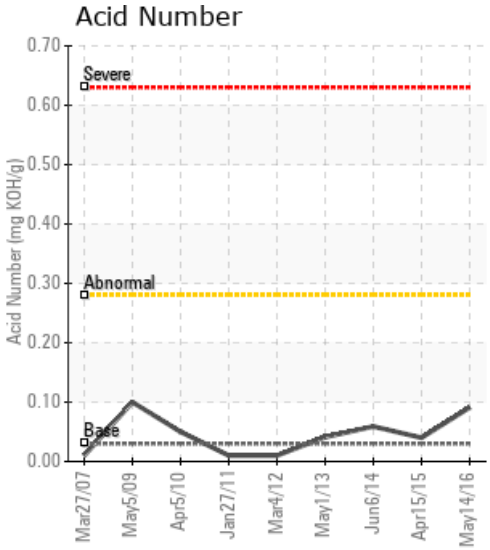
LINE 2 FILLED COATING CHROMALOX

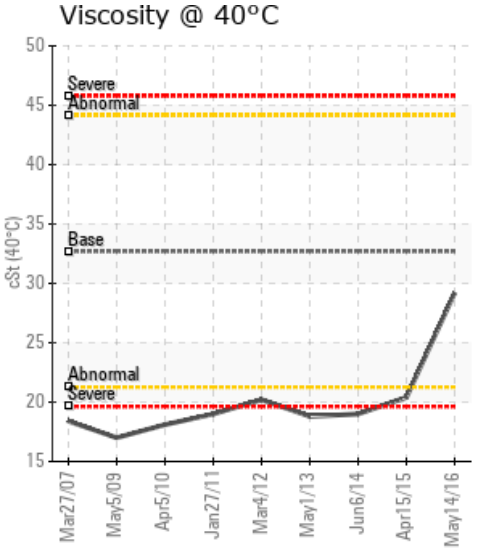
Customer: PTRHTF10069	System Information	Sample Information
CERTAINTEED - SAINT GOBAIN 3303 EAST 4TH AVENUE SHAKOPEE, MN 55379 USA Attn: Patrick Wallace Tel: E-Mail: patrick.wallace@saint-gobain.com	System Volume: 1890 gal Bulk Operating Temp: 474F / 246C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: CHROMALOX	Lab No: 02073861 Analyst: Neil Buchanan Sample Date: 05/14/16 Received Date: 05/24/16 Completed: 05/27/16 Neil Buchanan neil.buchanan@hollyfrontier.com

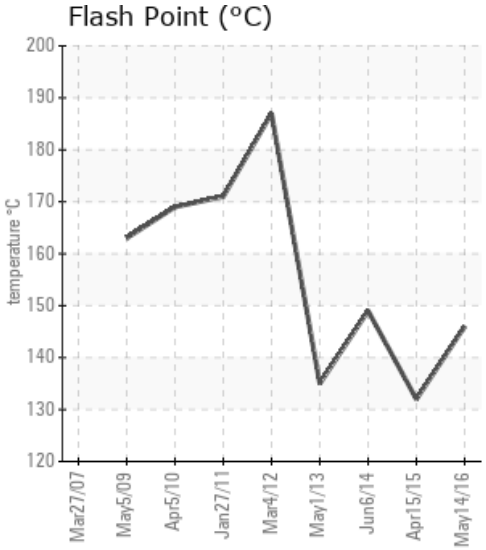
Recommendation: COC Flash Point is severely low. GCD % at <335C has increased to 5.8% and the presence of light ends can be seen in the GCD. IBP has also decreased to 164C. Recommend venting the system.

Comments:

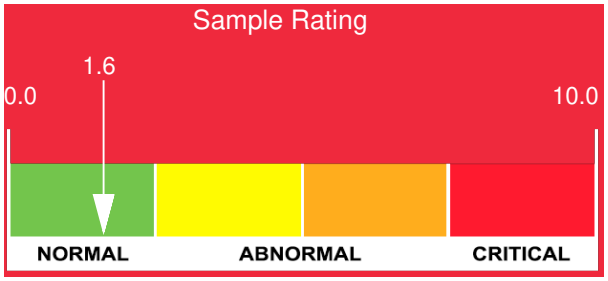
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/14/16	05/24/16	0.0y	MAIN SYSTEM FLOW	295 / 146	14.1	29.2	0.091	0.048	668 / 354	780 / 416	873 / 467	5.82
04/15/15	05/07/15	0.0y	MN FLOW/MN SYS PUMP	270 / 132	18.8	20.4	0.04	0.031	683 / 362	782 / 417	884 / 474	2.96
06/06/14	06/17/14	0.0y	MAIN FLOW NEAR PUMP	300 / 149	11.0	19.0	0.059	0.016	654 / 346	777 / 414	877 / 469	7.70
05/01/13	05/15/13	0.0y	MAIN SYSTEM FLOW	275 / 135	53.2	18.8	0.041	0.032	699 / 371	775 / 413	861 / 461	0.00
03/04/12	03/14/12		MAINSYSTEM FLOW	369 / 187	43	20.2	0.01	0.014	671 / 355	765 / 407	866 / 464	5.53
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

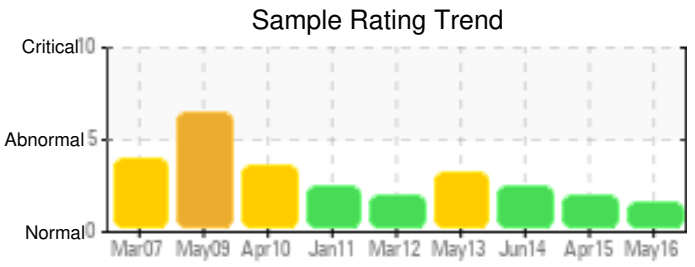






PETRO-CANADA LUBRICANTS

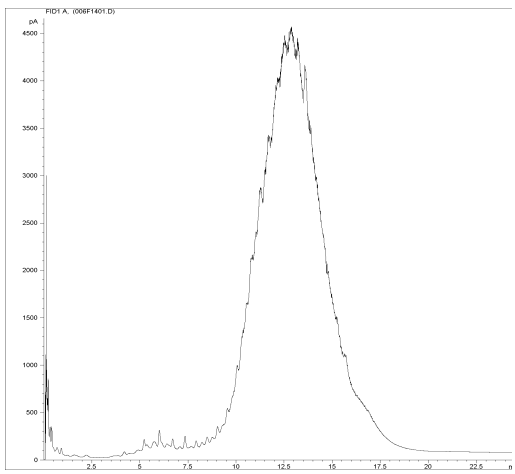


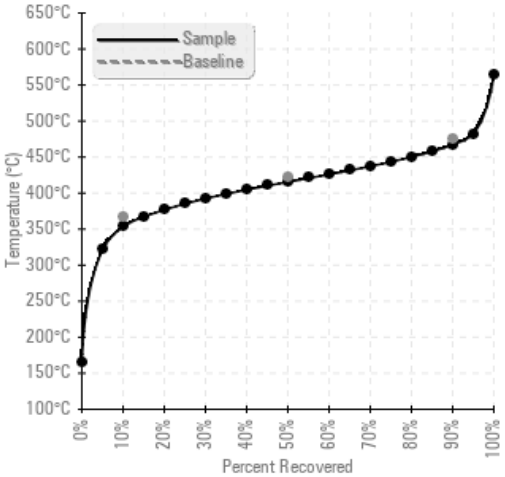


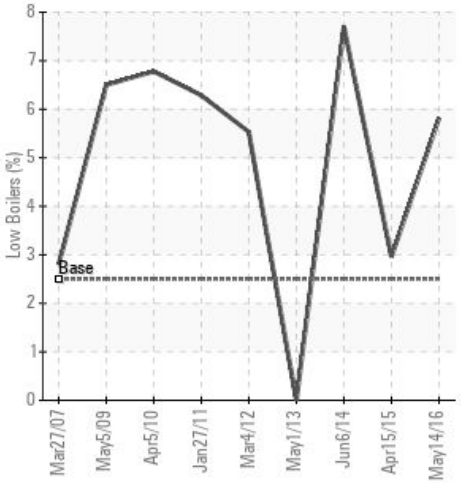
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
05/14/16	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	115	0
04/15/15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	60	0
06/06/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0
05/01/13	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	39	0
03/04/12	1	0	0	0	0	0	1	0	0	0	5	0	2	0	0	0	0	0	3	0	0	1	67	0
Baseline Data			0	0						0			0	0					0				270	

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

GCD Spectrum







Historical Comments

04/15/15	Flash point is severely low and system should be vented or fluid changed. Viscosity at 40C is substantially lower than new Calflo AF - investigate source. NOTE: Sample is more than 1 year old and was never completed. Closing out in LIMS system. COC Flash Point is severely low. Visc @ 40°C is abnormally low.
06/06/14	Flash point is severely low and system should be vented or fluid changed. Viscosity at 40C is substantially lower than new Calflo AF - investigate source. COC Flash Point is severely low. Visc @ 40°C is severely low.
05/01/13	The accuracy of the results is questionable, specially the low flash point and strange GCD results. We will have a discussion with the lab about this. The oil shows 0 low boilers, 5.5% less that the last sample yet the viscosity dropped by another 10%. The flash point dropped by 50 deg C which is too much of a drop since the last sample was at 170-180C. We are releasing the report but have trust issues with the flash point and GCD data. Regardless of the above, one thing is sure is the system needs venting to get the viscosity back up and and low boilers under control. COC Flash Point is severely low. Visc @ 40°C is severely low. (GCD) 90% Distillation Point is marginally 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 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.