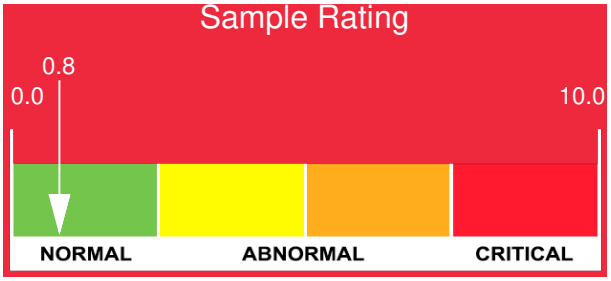
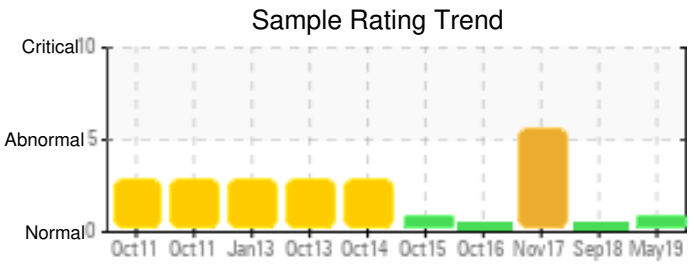




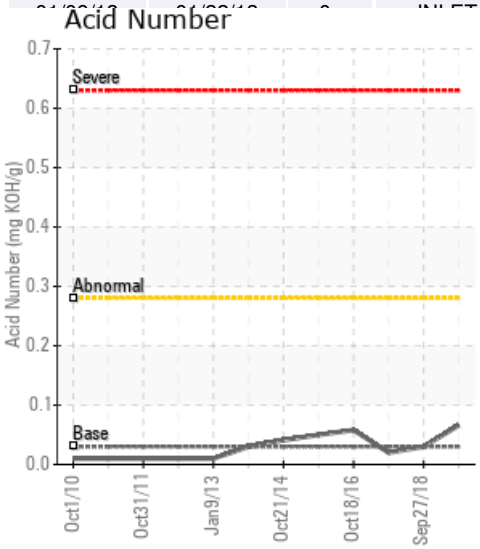
XST HOT OIL SYSTEM HEATING HTF

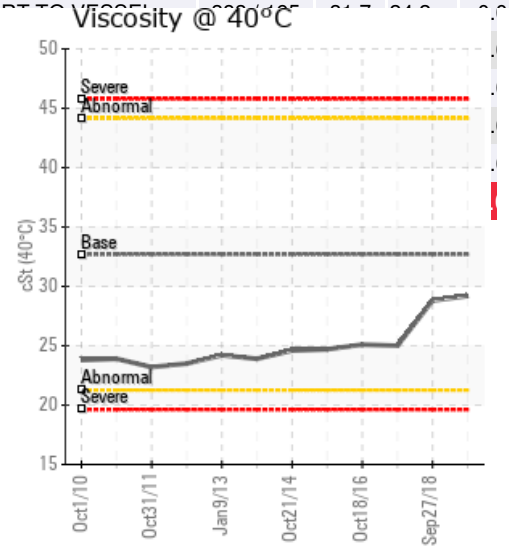
Customer: PTRHTF10048	System Information	Sample Information
MOMENTIVE PERFORMANCE MATERIAL 703 SOUTH STREET NEW SMYRNA BEACH, FL 32168 USA Attn: Frances Robinson Tel: (386)409-5515 E-Mail:	System Volume: 100 gal Bulk Operating Temp: 305F / 152C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: SPALTECH	Lab No: 02287111 Analyst: Manny Garcia Sample Date: 05/23/19 Received Date: 05/24/19 Completed: 05/28/19

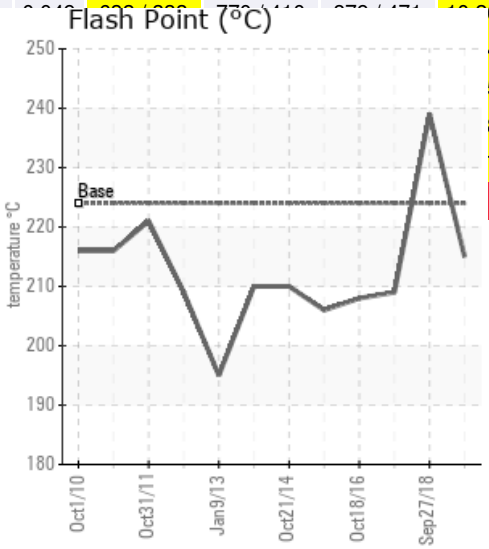
Recommendation: Fluid is suitable for continued use. Please re-submit sample in May 2020

Comments: Fluid parameters appear to be in very satisfactory condition. Fluid appears to have a 'hazy' appearance and there is very lite debris present in the oil. Filtration of the fluid in the system during a safe 'down-time' could help in maintaining proper system cleanliness.

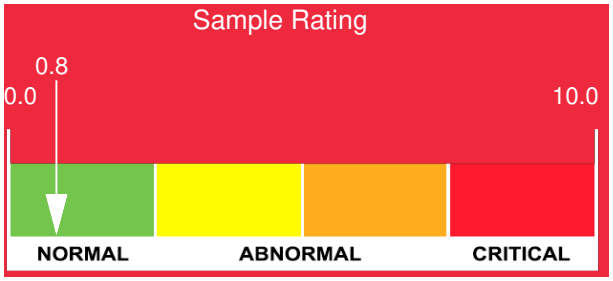
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
05/23/19	05/24/19	1y	XST SAMPLE PORT	419 / 215	113.3	29.2	0.066	0.035	672 / 356	782 / 416	883 / 473	4.46
09/27/18	10/03/18	0y		462 / 239	3.7	28.8	0.03	0.037	677 / 358	781 / 416	878 / 470	3.57
11/02/17	11/13/17	9y		408 / 209	4.3	25.0	0.02	0.013	628 / 331	734 / 390	846 / 452	12.47
10/18/16	10/27/16	6y	OIL RESERVOIR	406 / 208	35.7	25.1	0.058	0.059	643 / 339	780 / 416	900 / 482	8.37
10/23/15	11/05/15	5y	SAMPLE PORT	403 / 206	0.00	24.7	0.05	0.029	709 / 376	805 / 430	906 / 486	2.54
10/21/14	10/30/14	4y	RETURN SAMPLE TUP	410 / 210	4.5	24.6	0.041	0.055	632 / 333	768 / 409	883 / 473	10.12
10/22/13	10/31/13	4y	INLET PORT	410 / 210	6.1	23.9	0.03	0.029	638 / 337	778 / 415	884 / 473	8.99







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
05/23/19	4	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	263	2
09/27/18	4	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	263	2
11/02/17	5	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	266	2
10/18/16	4	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	280	2
10/23/15	4	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	267	2
10/21/14	3	0	0	0	0	2	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	287	2
10/22/13	3	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	240	1
01/09/13	3	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	250	2
10/31/11	2	0	0	0	0	2	0	0	0	0	7	0	0	0	0	0	0	0	3	1	2	1	227	2
10/31/11	2	0	0	0	0	2	1	0	0	0	7	0	1	0	0	0	0	0	3	0	0	1	232	1
10/01/10	2	0	0	0	0	2	0	0	0	0	3	0	1	0	0	1	0	0	0	0	1	0	235	1
10/01/10	3	0	0	0	0	2	0	0	0	0	3	0	0	0	0	2	0	0	0	0	2	0	232	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

09/27/18	Fluid is suitable for continued use. Please include time on oil and component age when the next annual sample is sent September, 2019.The fluid condition has greatly improved in the last year between analysis. Continue to maintain the system in the same fashion for optimal results.
11/02/17	'Venting' this system can assist in bringing the distillation points back in-line. Any maintenance done to mitigate these values should be followed up with another oil sample to our lab for verification.Very Low Wear Metals; Low contamination levels; 4.3ppm water level - low; Very low acid numbers; 25 CsT @ 40oC' (GCD) 90% Distillation Point is severely low. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low. (GCD) 50% Distillation Point is marginally low. Pentane insolubles are low; Very Light debris visible;
10/18/16	Fluid sample is good for continued service. Please re-sample and submit to lab in October 2017. Thanks for your business!Wear metals are low/contaminant levels are low/water levels are acceptable at 35.7 ppm/Viscosity is satisfactory/Flash point is satisfactory/distillation curves at 10%-50% and 90% satisfactory/very lite debris present in sample/pentane insoluble are low/
10/23/15	Oil is suitable for continued use. Please send in sample during next scheduled interval.Wear Metals are Low; Contaminant Levels are Low; Water is Nil; Total Acid Number is Very Low; Viscosity is one grade lower then the formulation design; Flash Point is good; 90% Distillation is high and venting the system could get this number back into place. Pentane Solids are low.
10/21/14	The oil is starting to be thermally degraded, as shown by the reduced viscosity and GCD 10% temperature. In your case it is not as critical because your operating temp is only 305F but we suggest to keep sampling at regular interval. No action at this time but perhaps plan next year for a fluid change. Send a sample a good 2 months before the shut down to detemrine if fluid replacement is needed. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low.
10/22/13	The oil viscosity is low and distillation curve shows low boilers due to thermal cracking but surprisingly the flash point remains strong. The operating temperature is not that high anyways. Keep up the yearly sampling interval. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low.
01/09/13	The oil is consistent with previous samples. Please re-sample at next normal interval. (GCD) % < 335°C is marginally high and the (GCD) 10% distillation point is marginally low.

10/31/11

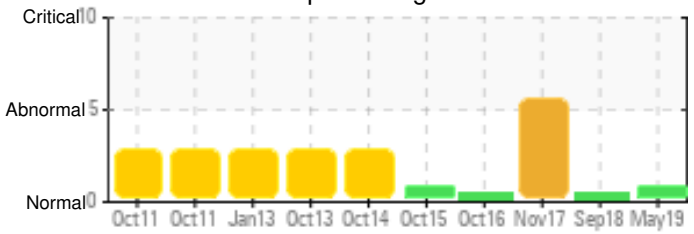
The oil condition is virtually unchanged since the last sample from Oct 2010. The viscosity is much lower than fresh Calflo AF, perhaps due to left over of a lighter oil at the time of change-out or due to thermal cracking of the fluid. The flash point is still strong and the oil still suitable for further use.

10/31/11

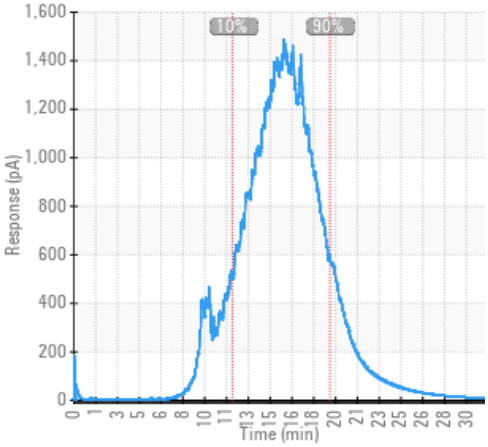
10/01/10	The oil condition is virtually unchanged since the last sample from Oct 2010. The viscosity is much lower than fresh Calflo AF, perhaps due to left over of a lighter oil at the time of change-out or due to thermal cracking of the fluid. The flash point is still strong and the oil still suitable for further use.

10/01/10	The oil shows a low viscosity but the flash point and other critical properties loc or severe thermal degradation. Based on these results the oil looks acceptable

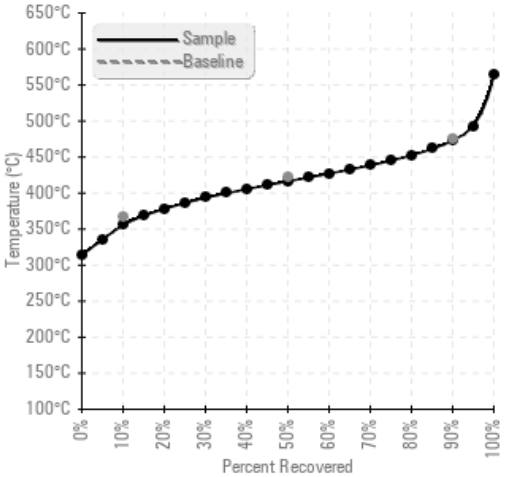
Sample Rating Trend



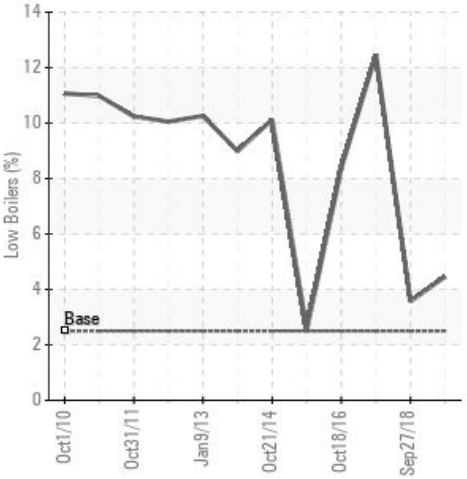
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



The oil shows a low viscosity but the flash point and other critical properties look normal. As if it was mixed with a lighter oil. The oil shows no signs of oxidation or severe thermal degradation. Based on these results the oil looks acceptable for further use. if operational problems exist, please advise us.