

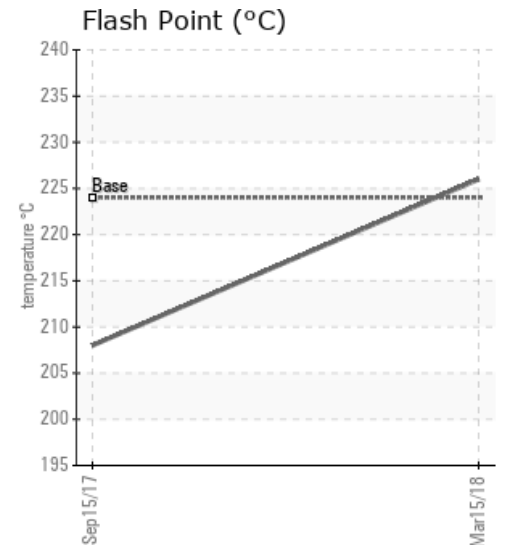
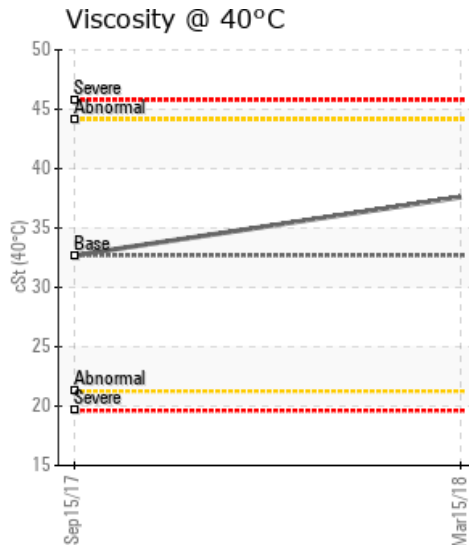
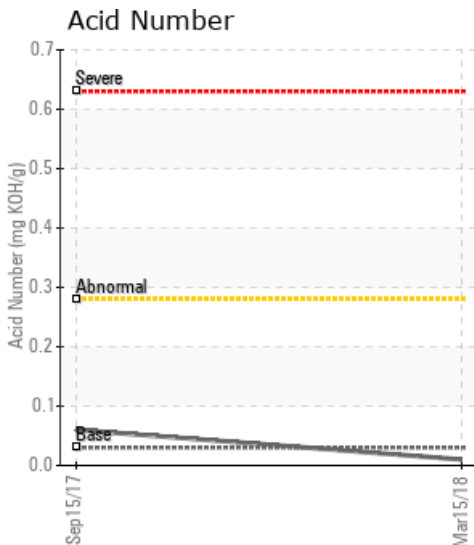
## MAIN BOILER -SYSTEM

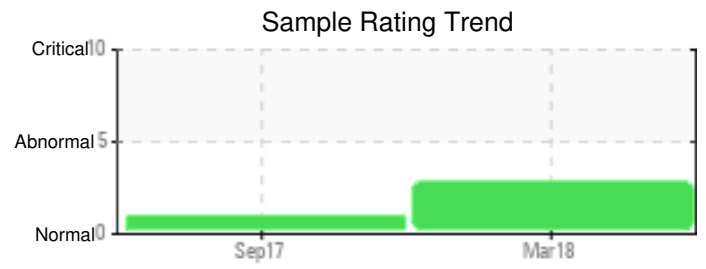
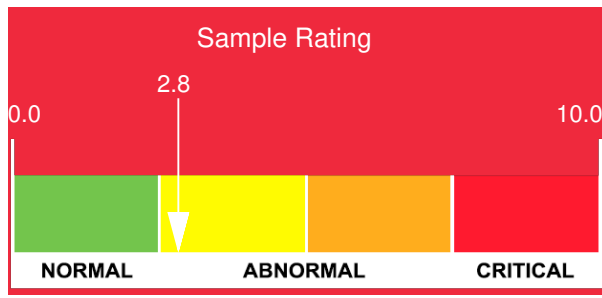
Customer: PTRHTF30025	System Information	Sample Information
MANCUSO CHEMICALS 5725 PROGRESS STREET NIAGARA FALLS, ON L2E 6X8 CANADA Attn: Dave Senior Tel: (905)357-3626 E-Mail: dsenior@mancusochemicals.com	System Volume: 3280 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: ARIZONA BOILER CO	Lab No: 02204607 Analyst: Adam Koscielak Sample Date: 03/15/18 Received Date: 03/19/18 Completed: 04/10/18 To discuss this report contact Adam Koscielak at 905-331-1323

Recommendation: Calcium, Sodium and Iron levels are elevated. Suggest investigation into the source of the Calcium and Iron ingress. Check for possible fluid contamination or possible sample container contamination. Fluid viscosity and GCD data are consistent with Calflo AF. Pentane insoluble indicate an increase in the solids content from the previous sample. No indication of high water present in the sample, water content was measured at 37 ppm consistent with previous samples. Resample in 6 months, to monitor solids levels.

Comments: Pentane Insolubles levels are severely high. Calcium ppm levels are severely high.

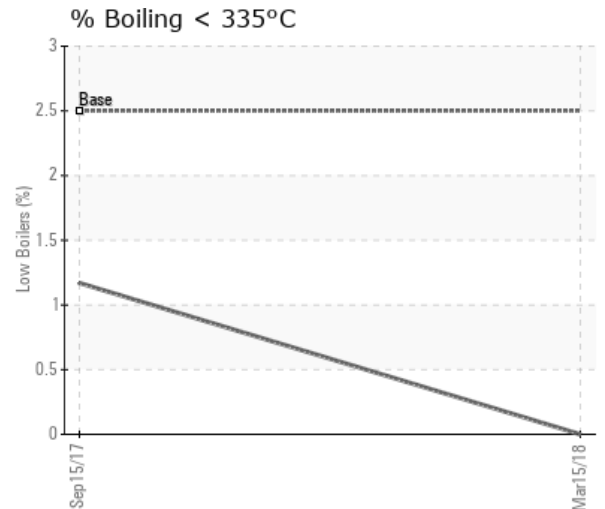
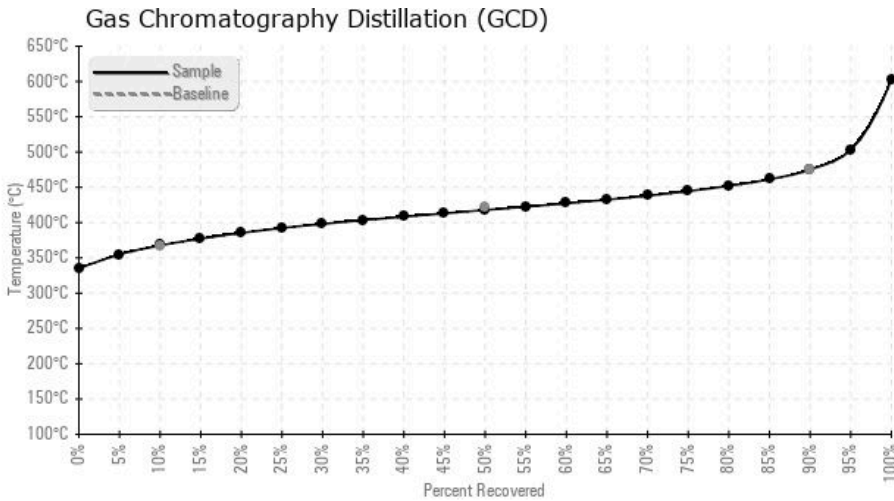
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/15/18	03/19/18	0y		439 / 226	30.1	37.6	0.01	0.668	694 / 368	784 / 418	887 / 475	0.00
09/15/17	12/22/17	0y	AK171221-01	406 / 208	34.6	32.7	0.06	0.337	697 / 370	797 / 425	900 / 482	1.17
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
03/15/18	39	0	0	0	1	1	0	58	0	0	1	8	1	0	0	0	1	0	1	0	58	0	97	0
09/15/17	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	141	0
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

09/15/17	This system sample taken on September 15th is suitable for continued service. While there is insoluble present in the sample, this sample indicates the solids level is still acceptable for continued use. Gas Chromatographic data indicates the Calflo AF is in good condition with no indication of light boilers present. Wear metals are low in concentration. Physical properties of the Calflo heat transfer oil are suitable for continued service.
----------	--