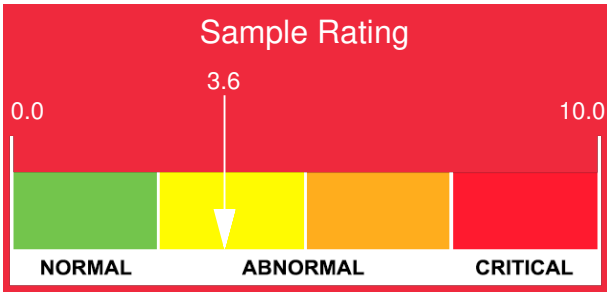
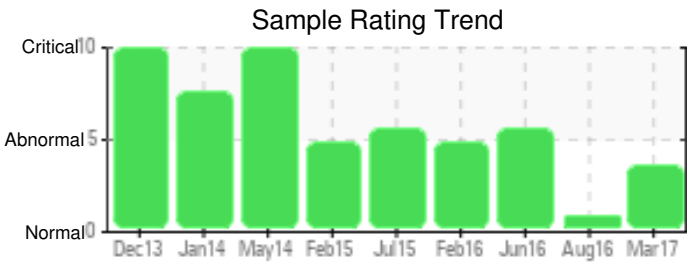




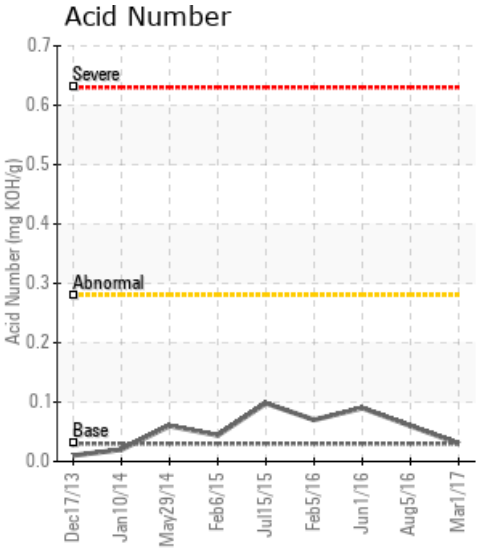
LN02 Filler Mixer Hot Oil System

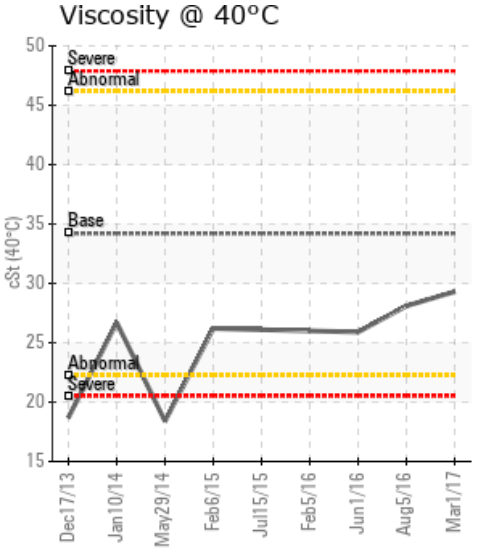
Customer: PTRHTF10141	System Information	Sample Information
TAMKO BUILDING PRODUCTS 2300 35TH ST TUSCALOOSA, AL 35401 USA Attn: Greg Colburn Tel: (205)752-3555 E-Mail: gregory_colburn@tamko.com	System Volume: 650 gal Bulk Operating Temp: 530F / 277C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HEATEC Inc.	Lab No: 02131246 Analyst: Manny Garcia Sample Date: 03/01/17 Received Date: 03/07/17 Completed: 03/10/17 To discuss this report contact Manny Garcia at 954-384-7259

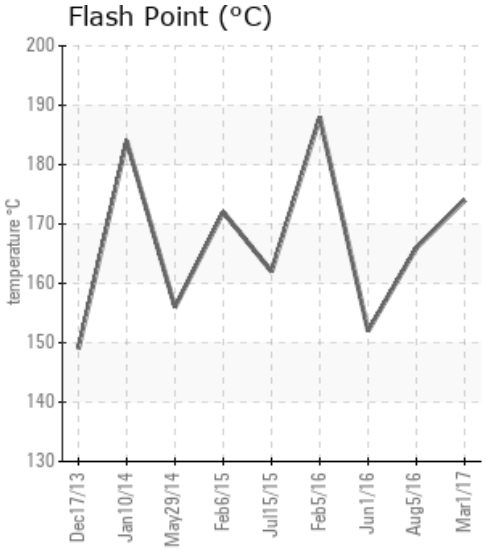
Recommendation: Recommendation to 'vent' system may assist the flash point and distillation points <335oC. Send sample into the lab after any mitigation/maintenance is performed to check for improved values. Safely filtering the oil during any shutdowns and/or changing any system filters may reduce the visible debris

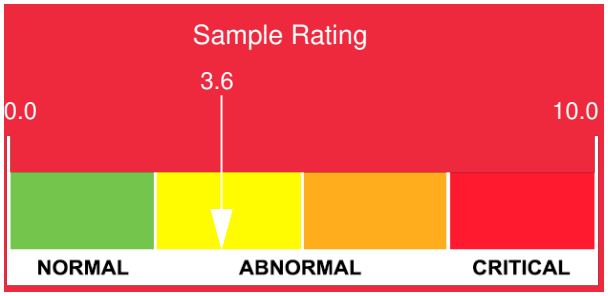
Comments: Wear metals are low/Contaminant levels are low/Water is nil/COC Flash Point is abnormally low. (GCD) % < 335°C is marginally high. (GCD) 10% Distillation Point is marginally low/Viscosity is in check/Pentane insoluble are satisfactory/Very light debris in sample

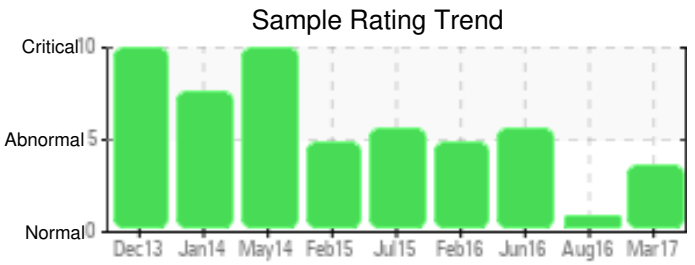
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/01/17	03/07/17	13m	PORT	345 / 174	18.6	29.3	0.03	0.047	654 / 346	795 / 424	913 / 490	7.50
08/05/16	08/11/16	0m	SAMPLE PORT	331 / 166	17.2	28.1	0.06	0.038	740 / 393	813 / 434	913 / 490	1.96
06/01/16	06/09/16	0m	SAMPLE PORT	306 / 152	28.7	25.9	0.09	0.041	604 / 318	779 / 415	893 / 479	13.47
02/05/16	02/12/16	0m	SAMPLE PORT	370 / 188	34.9	26.0	0.07	0.043	606 / 319	775 / 413	893 / 479	13.67
07/15/15	07/29/15	6m	SAMPLE PORT	324 / 162	0.00	26.1	0.098	0.022	613 / 323	781 / 416	907 / 486	12.37
02/06/15	02/18/15	4m		342 / 172	25.3	26.2	0.044	0.031	612 / 322	780 / 416	901 / 483	12.71
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





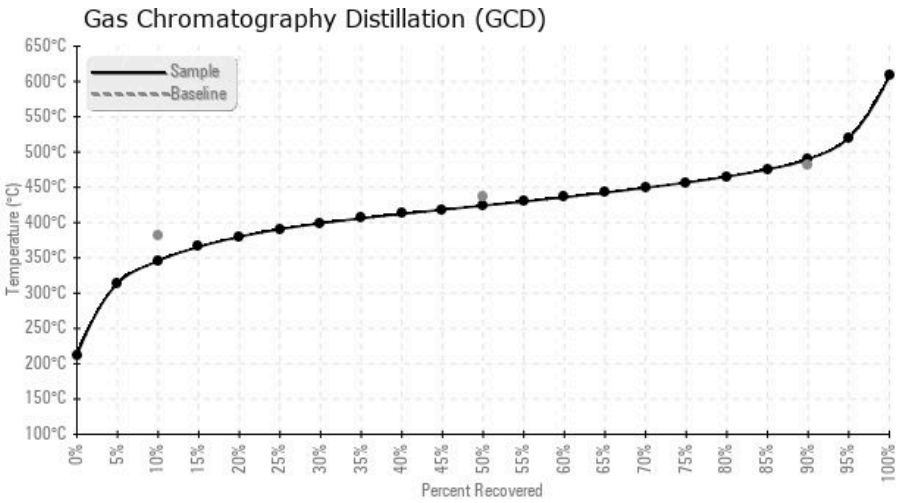


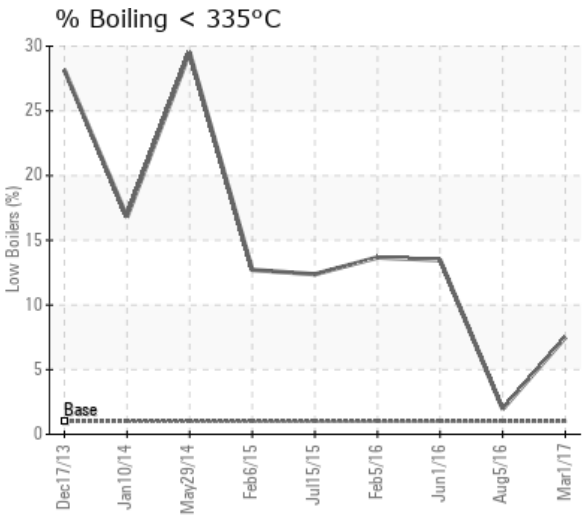




Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
03/01/17	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	22	0
08/05/16	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
06/01/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/05/16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
07/15/15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
02/06/15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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





Historical Comments

08/05/16	Please include age of unit and age on the 650 gallon charge of Petro-Therm fluid on next sample submission/Excellent improvement in this used oil sample result from the previous oil sample. Please re-submit sample in 9 months to a year as a general recommendation or sooner if problems are anticipated.Wear metals are low and in check/no contamination-no debris/Water is low/Total Acid Number is low/Flash Point is moderately low at 166oC, but an improvement from the previous sample which was 152oC - improvement of 14oC/Previous sample was 2 months ago/distillation curves are excellent and an improvement @<335oC as well as @10%/Pentane solids are low/Clean sample
06/01/16	The Flash Point can be brought up by artificial methods. Taking no more then 10% of the volume of the oil in the system and replacing with virgin oil. This will help the abnormal distillation curve values also. 'Venting' the system can assist in correcting the distillation curve values. Please include the age of the oil and the system during the submission of the next sample. Please re-send sample to verify corrective actions.Wear metals are low; Contaminant levels are low; Moisture levels are in acceptable ranges; Viscosity is slightly out of the ISO 32 range; (GCD) 10% Distillation Point is severely low; COC Flash Point is severely low; (GCD) % < 335°C is abnormally high. Very Light debris visible in sample
02/05/16	Please Include the age of the oil and the equipment on next sample submission. Please re-sample after any 'venting' has been performed to see if the corrective action mitigated the distillation curve readings. Depending on the age of the oil in this system (650 gallons), it may be safer and more efficient to drain & flush the system and re-charge with Fresh Petro-therm fluid.Wear metals are low and satisfactory/moisture is low/Total Acid number is low/ISO Viscosity grade is in check/(GCD) 10% Distillation Point is severely low. (GCD) % < 335°C is abnormally high. 'Venting' the system is recommended to protect the system fluid from 'cracking'. COC Flash Point is marginally low by 35 degrees. Pentane solids are acceptable/Very light debris visual in sample/
07/15/15	Recommend 'venting' of the system to bring the distillation points back to normal. Re-submit sample. Historical results show similar results. Check maintenance records for the last time a full system drain/flush and clean-out hasbeen completed. This sample could be a candidate for a complete service.Wear Metals are low; Water is nil; Total Acid Number is low; Viscosity is lower by 1 grade; Flash Point is lower by 61 degrees; Distillation point <335oC is higher; Distillation point at 10% is lower; Pentane solids are low; Babbitt and debris are evident in sample
02/06/15	Recommend 'venting' of the system to bring the distillation points back to normal. Re-submit sample. Historical results show similar results. Check maintenance records for the last time a full system drain/flush and clean-out has been completed. This sample could be a candidate for a complete service.Wear Metals are low; Water is low; Viscosity is lower by 1 grade; Flash Point is lower by 51 degrees; Distillation point at <335oC is High; Distillation at 10% is low; Pentane solids are low; Very light debris found in sample