

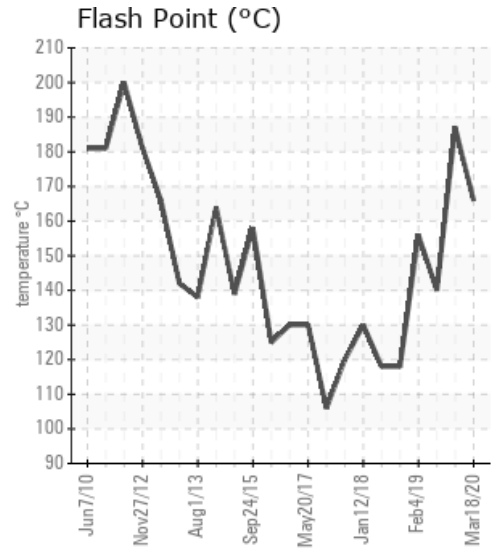
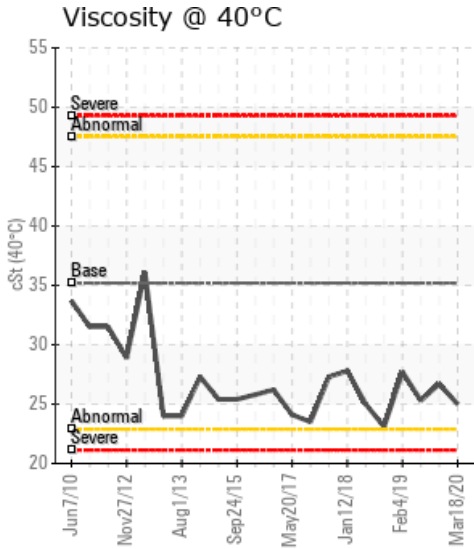
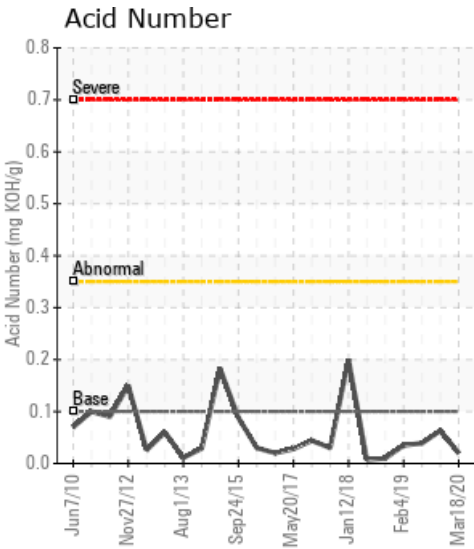
SOUTH HEATER

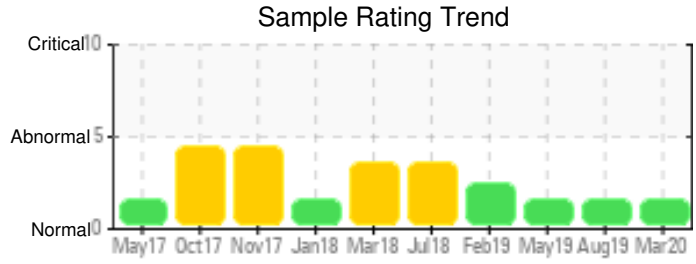
Customer: PTRHTF10043	System Information	Sample Information
MALARKY ROOFING PRODUCTS 3131 N. COLUMBIA BLVD PORTLAND, OR 97217 USA Attn: SCOTT MCDANIEL Tel: (503)283-1191 E-Mail: smcdaniel@malarkeyroofing.com	System Volume: 1200 gal Bulk Operating Temp: 620F / 327C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO HTF Make: AMERICAN HEATING	Lab No: 02346207 Analyst: Ron LeBlanc Sample Date: 03/18/20 Received Date: 03/27/20 Completed: 03/30/20 Ron LeBlanc Ronald.LeBlancSr@petrocanadalsp.com

Recommendation: The COC flash point is low again compared to the previous sample. All other typicals remain normal. Could the reported sample have been pulled without proper purging? Adding some new oil would bring up the flash point. Resample in 30 days and purge at least 2 gallons from sample point to evaluate the results.

Comments: COC Flash Point is severely low.

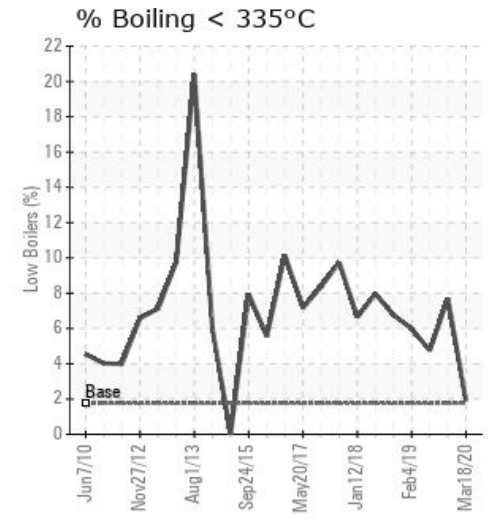
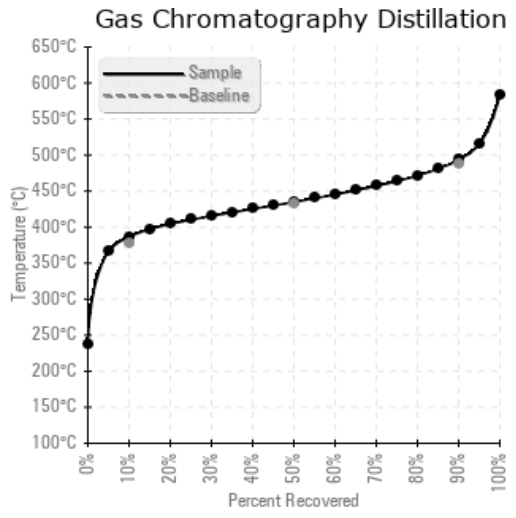
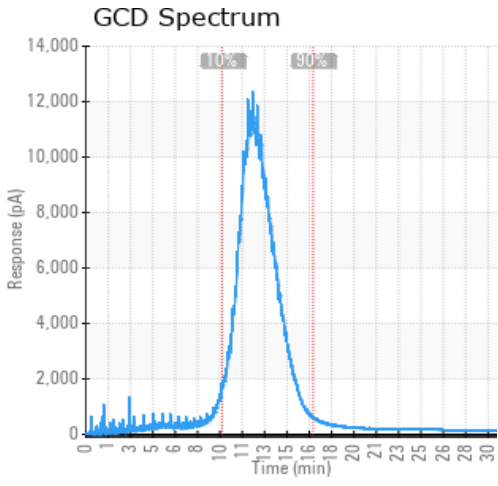
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/18/20	03/27/20	15m	NORTH HEAT EXCHANGE	331 / 166	8.9	25.0	0.02	0.045	728 / 387	815 / 435	920 / 493	1.90
08/09/19	09/06/19	8m	NORTH HEAT EXC	369 / 187	20.2	26.7	0.063	0.094	661 / 349	790 / 421	886 / 475	7.69
05/09/19	05/22/19	5m	PREHEAT TANKS	284 / 140	18.0	25.3	0.039	0.057	690 / 366	804 / 429	914 / 490	4.76
02/04/19	02/15/19	0m	SOUTH HEAT EXCHANGE	313 / 156	16.9	27.7	0.035	0.016	669 / 354	782 / 417	892 / 478	5.99
07/26/18	08/08/18	0m	NORTH HEAT EXCHANGE	244 / 118	4.9	23.1	0.01	0.098	662 / 350	775 / 413	865 / 463	6.76
Baseline Data				448 / 231		35.20	.1		712 / 378	810 / 432	910 / 488	1.75





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
03/18/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
08/09/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
05/09/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0
02/04/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0
07/26/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0
Baseline Data			0	0						0			0	0					0				280	

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



Historical Comments

08/09/19	COC Flash point came up from the previous sample. (GCD) 90% point is marginally low. Resample in 3 months. COC Flash Point is marginally low. (GCD) 90% Distillation Point is marginally low.
05/09/19	Flash point is lower than normal. If possible add new oil to bring flash point up. COC Flash Point is severely low.
02/04/19	COC Flash Point is elevated. Re-sample in 3 months to check results again. Purge 1/2 gallon of oil before sample is drawn. COC Flash Point is severely low. (GCD) 90% Distillation Point is marginally low.
07/26/18	Viscosity has dropped from ISO 32 to ISO 22. COC flash point has lowered significantly to a point that should be corrected. Determine what is affecting viscosity. Has there been a heater issue of late causing oil to overheat severely. New oil might need to be added to bring COC flash point up if no other issue is found. (GCD) 90% Distillation Point is severely low. COC Flash Point is severely low.

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