

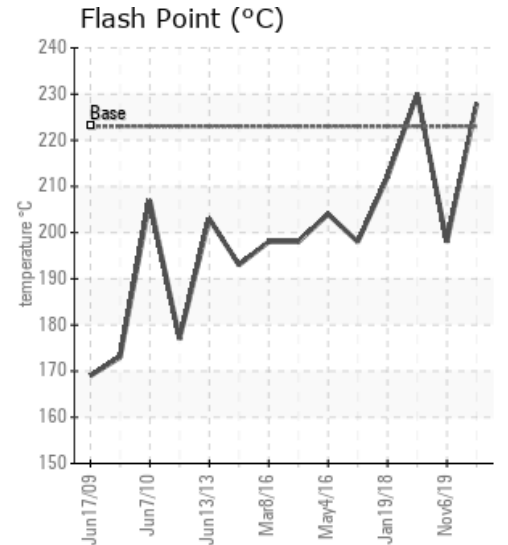
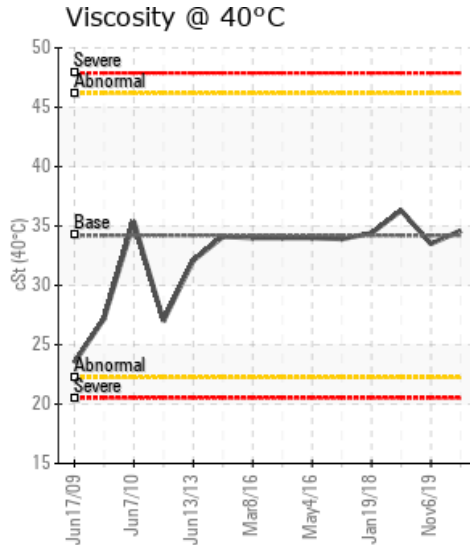
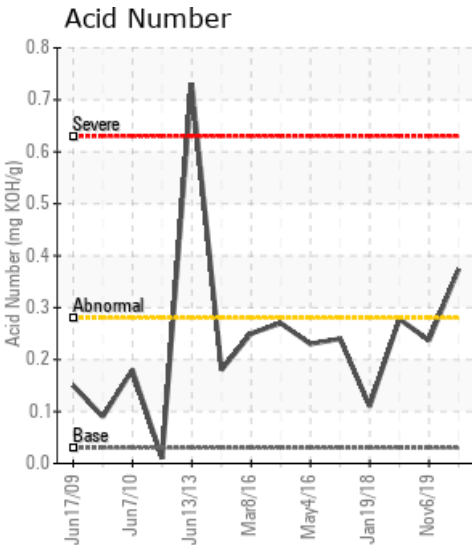
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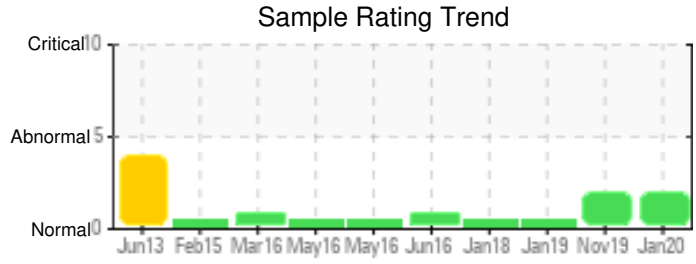
Customer: PTRHTF10017	System Information	Sample Information
LAKESIDE INDUSTRIES 955 SW ARMCO STREET HILLSBORO, OR 97124 USA Attn: BILL DEMPSEY Tel: (425)313-2600 E-Mail: billd@lakesideind.com	System Volume: 330 gal Bulk Operating Temp: 340F / 171C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: HIWAY HEAT	Lab No: 02334025 Analyst: Ron LeBlanc Sample Date: 01/16/20 Received Date: 01/27/20 Completed: 02/04/20 Ron LeBlanc Ronald.LeBlancSr@petrocanadalsp.com

Recommendation: (GCD) 90% Distillation Point is marginally high in this latest sample and it has lowered from previous sample. The Acid Number is elevated. The age of the oil should be reported. Adding some fresh oil can lower the AN.

Comments: Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high.

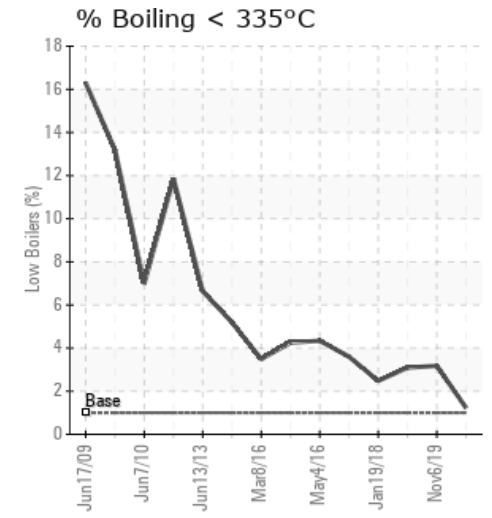
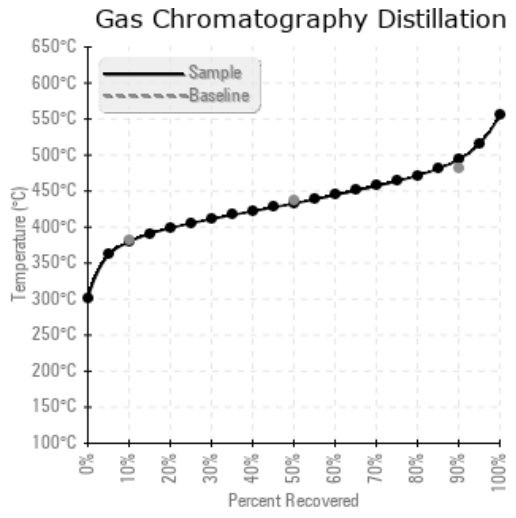
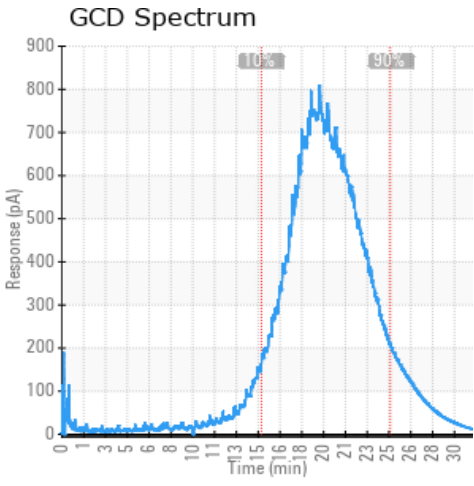
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/16/20	01/27/20	9y	FILTER	442 / 228	15.7	34.6	0.374	0.194	715 / 379	811 / 433	921 / 494	1.23
11/06/19	12/11/19	11y	BEFORE FILTER	388 / 198	19.8	33.5	0.237	0.216	708 / 375	821 / 438	951 / 511	3.18
01/04/19	01/15/19	9y		446 / 230	6.2	36.3	0.278	0.016	685 / 363	785 / 418	892 / 478	3.09
01/19/18	01/31/18	14y		414 / 212	88.7	34.4	0.11	0.249	707 / 375	809 / 432	910 / 488	2.48
06/23/16	07/11/16	8y	RETURN B4 FILTER	388 / 198	63.5	33.9	0.24	0.132	693 / 367	806 / 430	925 / 496	3.60
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
01/16/20	12	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
11/06/19	8	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
01/04/19	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
01/19/18	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
06/23/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0			0	0					0				0	

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



Historical Comments	
11/06/19	(GCD) 90% Distillation Point is severely high. It is the only indicator that is off spec in the sample. I would suggest re-sample. Purge oil before collecting the sample from sample point. (GCD) 90% Distillation Point is severely high.
01/04/19	Sample has elevated sulfur. Suggest sampling again in 1 month to see if a sample draw impacted quality of sample. The sample looks normal except the sulfur content.
01/19/18	Sample appears normal. Resample in 2 months.
06/23/16	Sample appears normal. Resample in 2 months. (GCD) 90% Distillation Point is marginally high.

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