

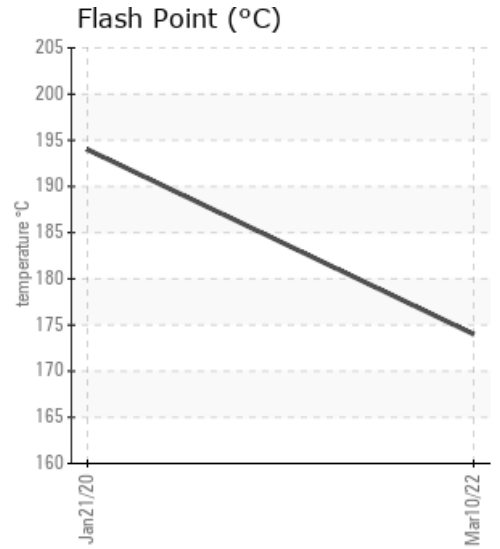
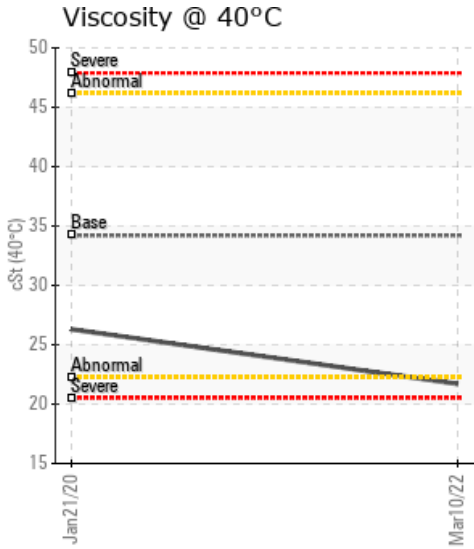
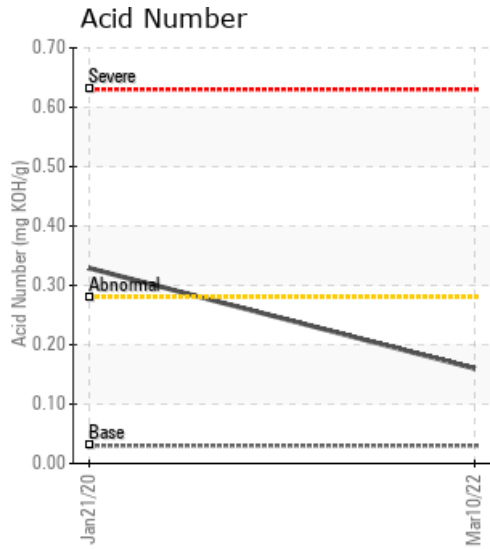
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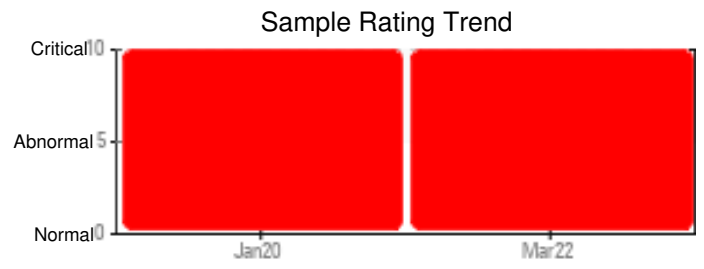
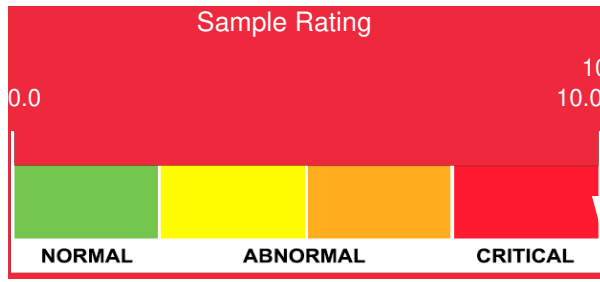
Customer: PTRHTF10229	System Information	Sample Information
ECOLUBE RECOVERY 11535 N FORCE AVE PORTLAND, OR 97217 USA Attn: Steve Mortesen Tel: (503)893-1115 E-Mail: smortesen@ecoluberecovery.com	System Volume: 2000 gal Bulk Operating Temp: 620F / 327C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make:	Lab No: 02478936 Analyst: Ron LeBlanc Sample Date: 03/10/22 Received Date: 03/23/22 Completed: 03/25/22 Ron LeBlanc Ronald.LeBlancSr@hollyfrontier.com

Recommendation: The oil is in poor condition as we discussed with the customer. Cleaning, Flushing, Fill with new oil is recommended.

Comments: (GCD) 10% Distillation Point is severely low. (GCD) 50% Distillation Point is severely low. (GCD) 90% Distillation Point is severely low. Calcium ppm levels are severely high. (GCD) % < 335°C is abnormally high. COC Flash Point is abnormally low. Visc @ 40°C is abnormally low.

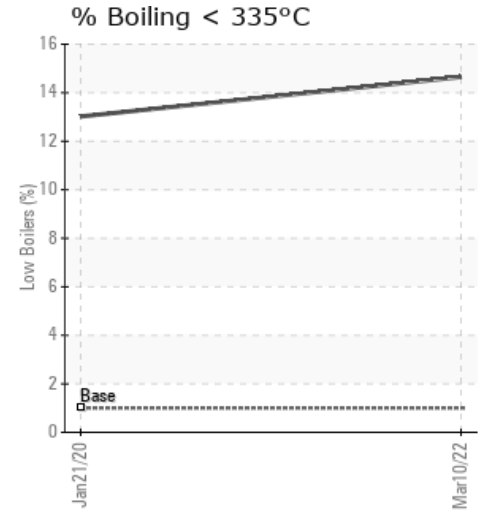
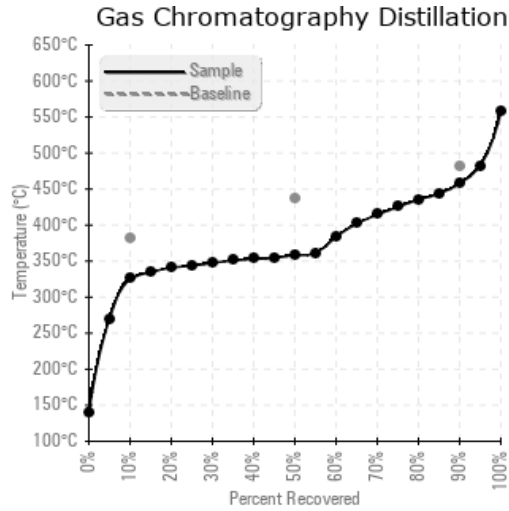
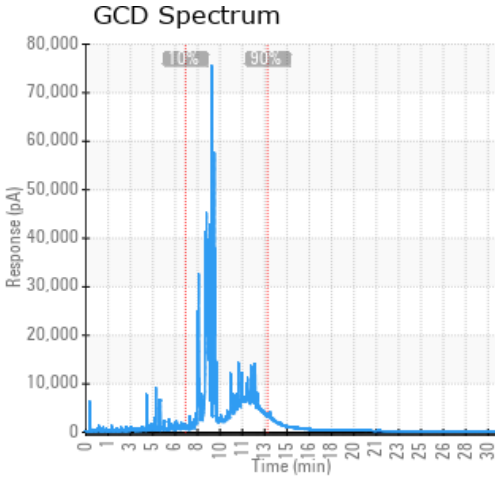
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/10/22	03/23/22	2.0y	Drop leaf	345 / 174	34.8	21.7	0.16	0.379	618 / 325	677 / 358	856 / 458	14.65
01/21/20	02/11/20	3.0y	DROP OUT	381 / 194	36.4	26.3	0.329	1.00	622 / 328	688 / 365	828 / 442	13.02
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
03/10/22	21	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	92	0	0	0
01/21/20	8	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	40	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

01/21/20	(GCD) 10% Distillation Point is severely low. (GCD) 90% Distillation Point is severely low. Visc @ 40°C is severely low. (GCD) % < 335°C is abnormally high. Acid Number (AN) is abnormally high. Calcium ppm levels are abnormally high. If the sample was taken properly this oil is indicative of past its useful life. I would suggest cleaning the system and replace the oil with A Cafflo product. Pentane Insolubles levels are severely high. (GCD) 10% Distillation Point is severely low. (GCD) 90% Distillation Point is severely low. Visc @ 40°C is severely low. (GCD) % < 335°C is abnormally high. Acid Number (AN) is abnormally high. Calcium ppm levels are abnormally high.
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