

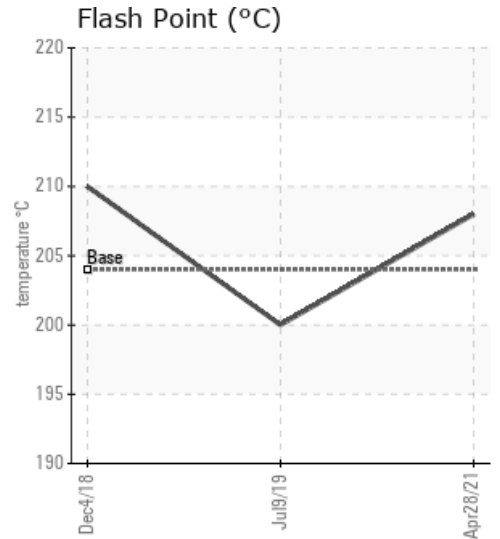
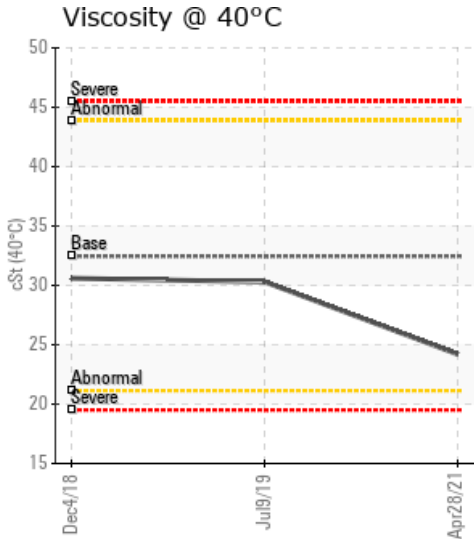
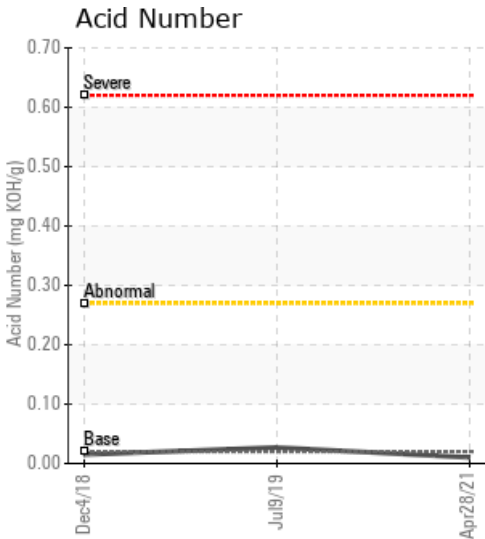
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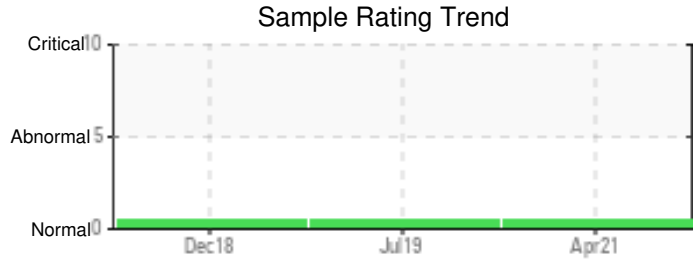
Customer: PTRHTF20208	System Information	Sample Information
Plains Midstream Canada PO Box 3210 Range Road 221 Fort Saskatchewan, AB T8L 2T2 Canada Attn: Marlon Gonzalez Tel: (780)992-2724 E-Mail:	System Volume: 1000 ml Bulk Operating Temp: 482F / 250C Heating Source: Blanket: Fluid: ESSO ESSOTHERM N32 Make:	Lab No: 02419201 Analyst: Terry Veenstra Sample Date: 04/28/21 Received Date: 05/05/21 Completed: 05/18/21 Terry Veenstra terry.veenstra@hollyfrontier.com

Recommendation: This oil viscosity is 30.6 cSt @ 40°C so is a blend of Thermoil 32 and PetroTherm. The TAN is still quite low at 0.01mgKOH/g and the flash point is still good @ 208°C indicating the fluid is in pretty good shape. The Pentane Insolubles are at 0.029% which suitable for further use.

Comments:

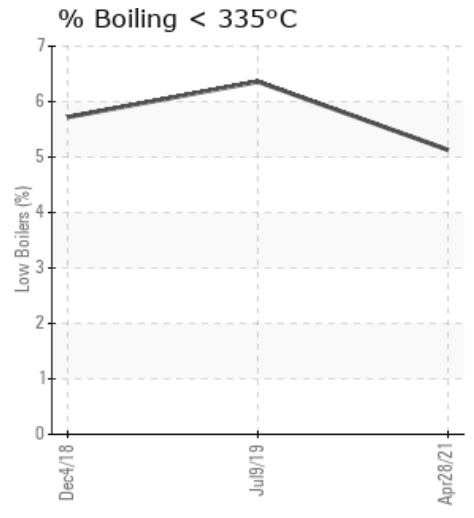
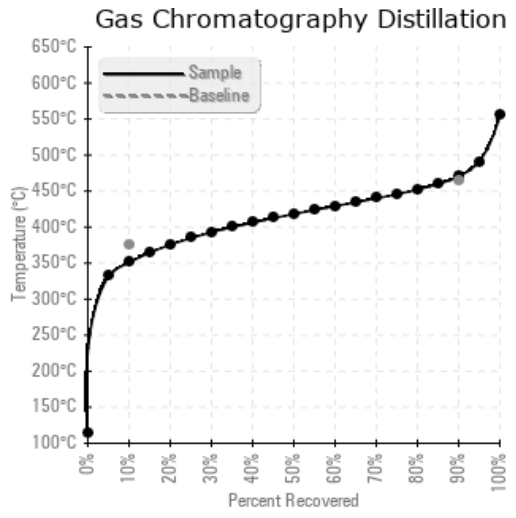
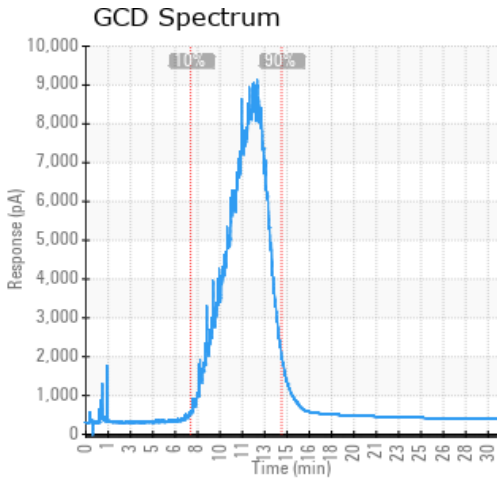
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
04/28/21	05/05/21	22.0y	After filtering syst	406 / 208	11.2	24.2	0.01	0.029	663 / 351	785 / 418	878 / 470	5.13
07/09/19	07/12/19	20.0y		392 / 200	6.7	30.3	0.027	0.038	654 / 346	779 / 415	869 / 465	6.36
12/04/18	12/20/18	0.0y		410 / 210	2.4	30.6	0.015	0.043	659 / 348	784 / 418	874 / 468	5.72
Baseline Data				399 / 204		32.45	0.02		707 / 375		869 / 465	





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
04/28/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/09/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/04/18	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

07/09/19	This sample indicates that the oil is good condition and suitable for further use. Resample in 6 months
12/04/18	This analysis report serves as the baseline reference for future top-up with Petro-Therm. The system is filled with Esso Thermoil 32. The fluid is in good condition and suitable for further use. The low 10% GCD temperature in combination with high boil-off % below 335 degrees C indicates thermal degradation of the fluid which is normal for these types of organic fluids. Venting of low boiler vapor to atmosphere is recommended as part of preventative maintenance. Please re-sample in 12 months. When sending in a sample please fill in oil service life, blanket gas and system volume data on the analysis request form.

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