

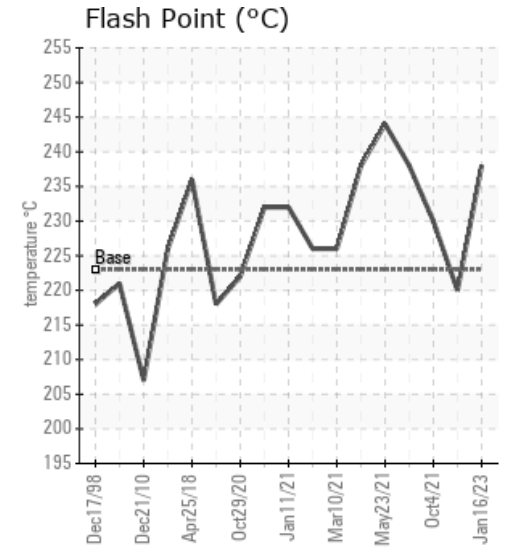
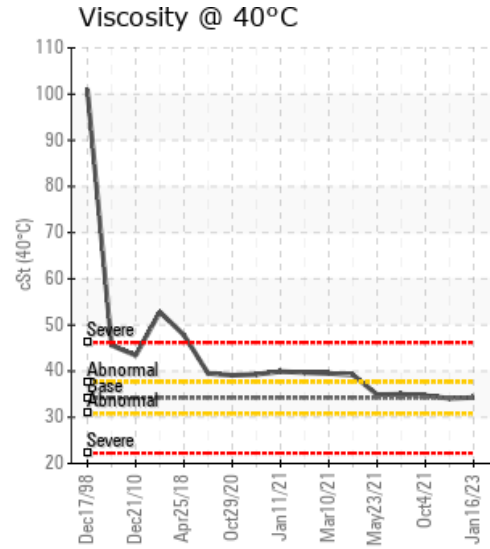
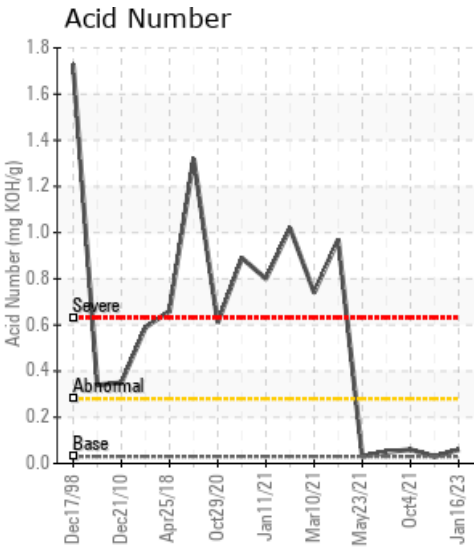
KONUS #1, 2 & 3

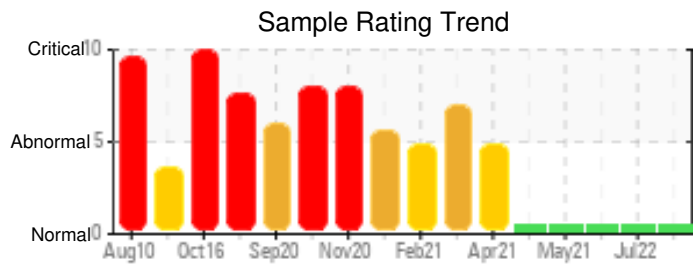
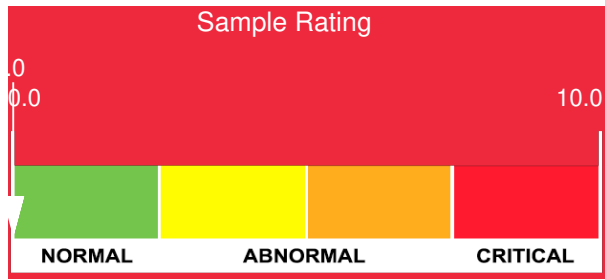
Customer: PTRHTF20179	System Information	Sample Information
Canfor - Polar 36654 Hart Highway General Delivery Bear Lake, BC V0J 3G0 CA Attn: Kevin Meise Tel: (250)552-5028 E-Mail: kevin.meise@canfor.com	System Volume: 140000 ltr Bulk Operating Temp: 446F / 230C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: KONUS	Lab No: 02534947 Analyst: Ray Rolston Sample Date: 01/16/23 Received Date: 01/23/23 Completed: 01/25/23 Ray Rolston Ray.Rolston@HFSinclair.com

Recommendation: System was cleaned, flushed and recharged with Petro-Therm in May 2021. Iron wear has crept up to 29 ppm. All other wear metals are low. Water content is low at 20 ppm, and Acid Number (AN) is also low at 0.06 mg KOH/g. Gas Chromatography Distillation (GCD) results are similar to fresh oil properties. Pentane Insolubles (solids) content is low at 0.088 wt%. All other inspections are normal; the fluid is in excellent condition. Recommend resampling in one year to monitor.

Comments:

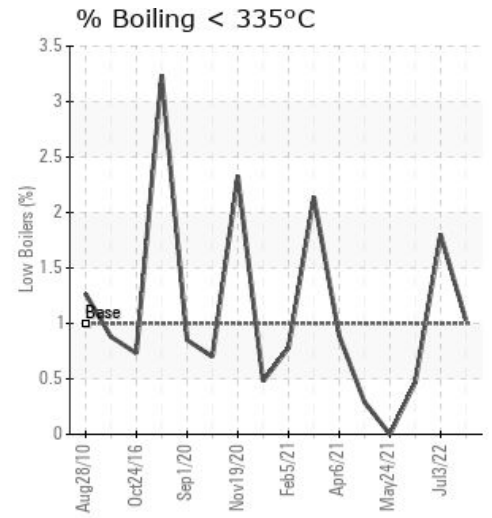
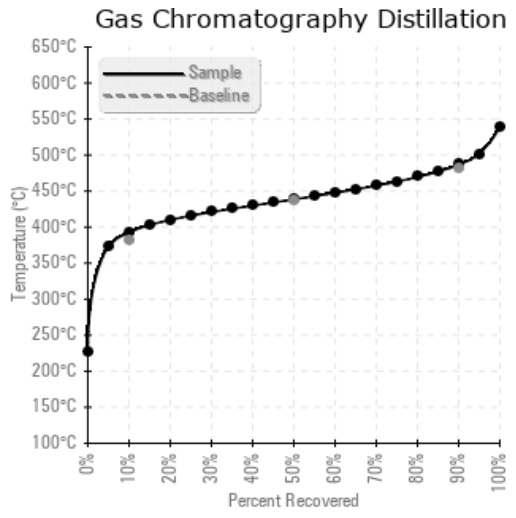
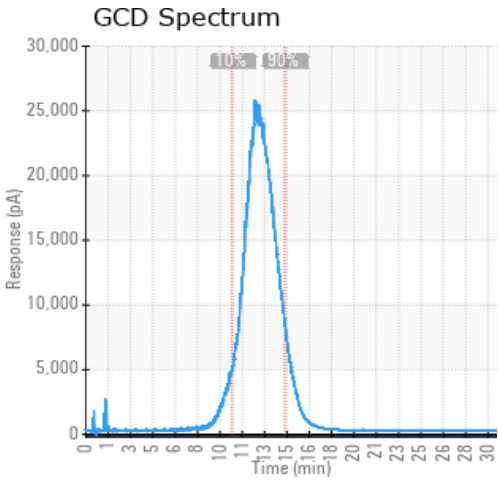
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
01/16/23	01/23/23	0.0y	pump #7	460 / 238	20.1	34.3	0.06	0.088	739 / 393	821 / 439	908 / 487	1.03
07/03/22	07/04/22	0.0y		428 / 220	30.1	34.1	0.03	0.081	732 / 389	819 / 437	908 / 486	1.80
10/04/21	10/13/21	0.5y	#7 pump gauge	446 / 230	45.3	34.7	0.06	0.147	734 / 390	815 / 435	905 / 485	0.47
05/24/21	05/31/21	0.0y	Gauge 7	460 / 238	29.8	35.0	0.05	0.044	728 / 387	807 / 431	913 / 489	0.00
05/23/21	05/31/21	0.0y	Pump 7 gauge	471 / 244	19.2	34.9	0.03	0.052	728 / 387	807 / 431	906 / 486	0.29
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
01/16/23	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07/03/22	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
10/04/21	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	1
05/24/21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1
05/23/21	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
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	
07/03/22	The Petro-Therm heat transfer fluid continues to be in 'like new' condition. The Acid Number (AN) remains low at 0.03mg KOH/g, and Pentane Insolubles (sludge) is also low at 0.081 wt%. All other fluid properties are in excellent condition. Recommend resampling in one year to monitor the fluid's condition.
10/04/21	The Acid Number (AN) of the oil after 6 months in service remains low at 0.06 mg KOH/g. The KV40 viscosity is stable at 34.7 cSt. Cleveland Open Cup (COC) Flash Point is also stable at 230 deg C. Gas Chromatograph Distillation (GCD) results are very good. The Pentane Insolubles (solids) content has increased marginally to 0.147 wt%. Re-sample in one year to monitor the fluid's condition.
05/24/21	Sample was submitted May 24, 2021 labelled KONUS #1, 2 & 3 Gauge 7. All test results on the fluid are as new. Water is 29.8 ppm; Acid Number is 0.05 mg KOH/g; Pentane Insolubles (solids) is 0.044 wt%. Recommend re-sampling in 6 months to monitor the fluid's condition.
05/23/21	Sample was labelled KONUS #1, 2 & 3 Pump 7 gauge. All fluid properties are like new. Water content is 19.2 ppm; Acid Number 0.03 (previously 0.97 mg KOH/g); Pentane Insolubles 0.052 wt% (previously 2.14 wt%). Recommend sampling in 6 months to monitor the fluid's condition.

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