

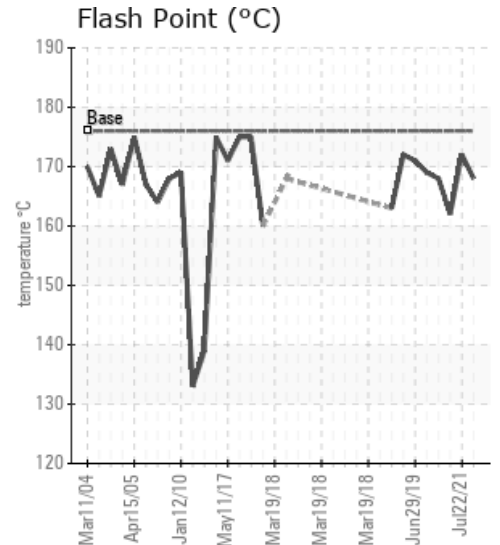
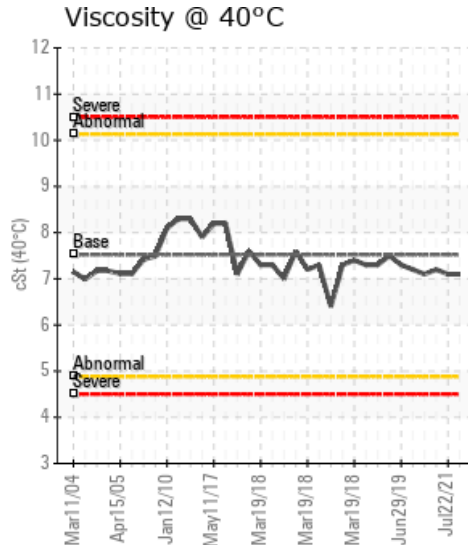
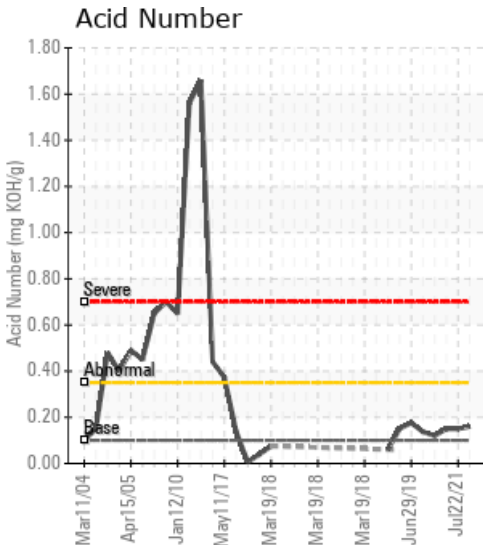
POWDER SLUSH HOT OIL

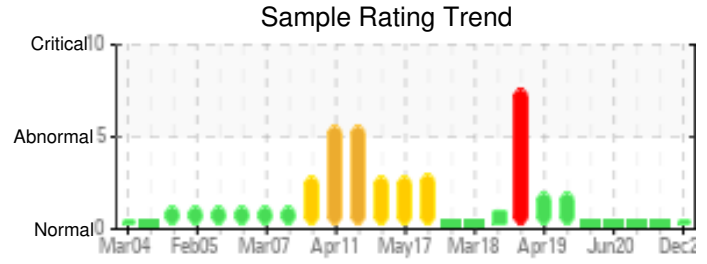
Customer: PTRHTF30023	System Information	Sample Information
INOAC INTERIOR SYSTEMS 575 JAMES STREET SOUTH ST MARYS, ON N4X 1B9 Canada Attn: Brent Dietrich Tel: (519)808-0372 E-Mail: bdietrich@inoacusa.com	System Volume: 14000 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: BP&R CONSTRUCTION	Lab No: 02465228 Analyst: Adam Koscielak Sample Date: 12/24/21 Received Date: 01/07/22 Completed: 01/13/22 Adam Koscielak adam.koscielak@hollyfrontier.com

Recommendation: Sample results indicate that the fluid is suitable for continue use. Please, sample at the next appropriate interval (6 to 9 months). No action needed at this time.

Comments:

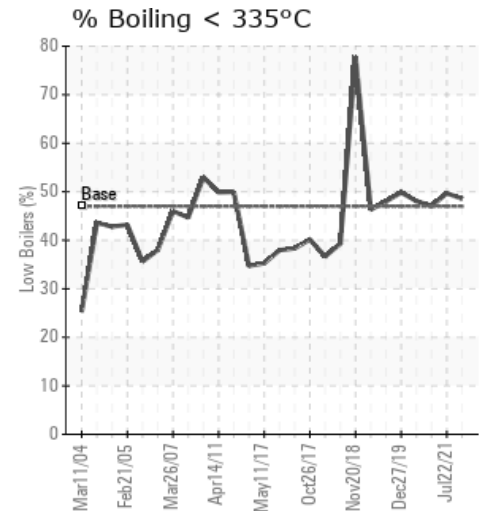
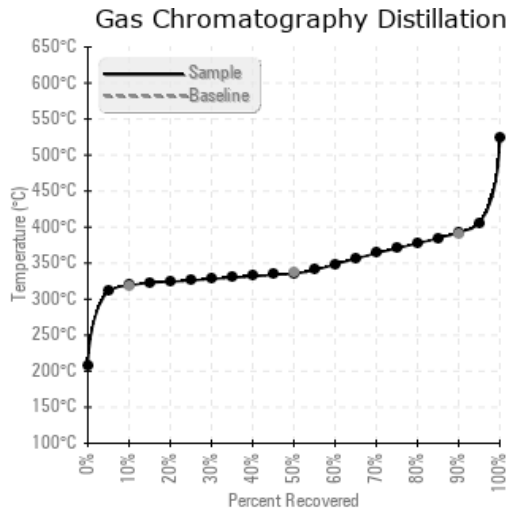
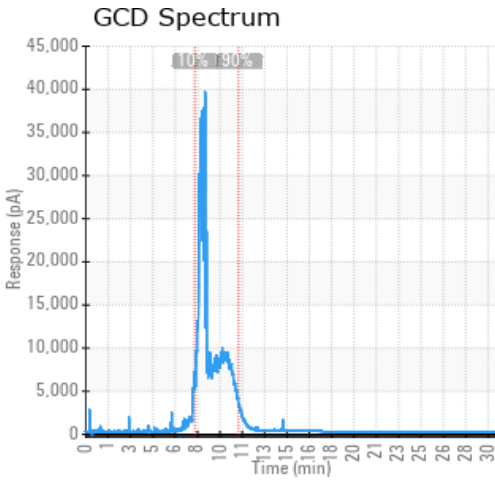
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
12/24/21	01/07/22	0.0h		334 / 168	7.5	7.1	0.16	0.027	606 / 319	636 / 336	739 / 393	48.57
07/22/21	07/23/21	0.0h		342 / 172	19.9	7.1	0.15	0.102	606 / 319	635 / 335	736 / 391	49.69
11/26/20	12/03/20	0.0h		324 / 162	18.4	7.2	0.15	0.052	608 / 320	637 / 336	737 / 392	47.03
06/29/20	06/30/20	0.0h	POWDER SLUSH	334 / 168	16.8	7.1	0.12	0.171	608 / 320	636 / 336	737 / 392	48.09
12/27/19	01/08/20	0.0h	RETURN	336 / 169	10.2	7.2	0.137	0.176	605 / 318	634 / 335	728 / 387	49.83
Baseline Data				349 / 176		7.52	0.1		604 / 318	640 / 338	734 / 390	47.0





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
12/24/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
07/22/21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0
11/26/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0
06/29/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	0
12/27/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	0
Baseline Data			0	0						0			0	0				0	0				270	

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



Historical Comments

07/22/21	Current heat transfer fluid Calflo LT sample for the Hot Oil system indicates no issues. All performance parameters such as Viscosity, Total Acid Number (TAN), Flash Point, GCD, and Pentane Insolubles are typical for a heat transfer fluid in service. Calflo LT is suitable for continued service. Resample at the next interval (6 - 9 months).
11/26/20	Current sample is consistent with used Calflo LT. Flash point slightly low, but GCD data does not indicate any increase in low boilers. Fluid is suitable for continued use, sample at next interval.
06/29/20	Current analysis of the Hot Oil system indicates the oil is suitable for continued use. Acid number and viscosity are fine, with very little water in the system. GCD profile is consistent with Calflo LT. No wear metals present. Pentane insoluble have shown a slight increase. Please ensure that the sample line is flushed thoroughly to remove any insoluble that may have accumulated before the sample is taken. Resample at next interval.
12/27/19	Current analysis of the Hot Oil system indicates the oil is suitable for continued use. GCD profile is consistent with Calflo LT. Acid number, Viscosity are consistent. No indication of wear metals. Pentane insoluble have shown an increase. Please ensure that sample line is flushed thoroughly to remove an insolubles that may have accumulated before the sample is taken. Resample at next interval.

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