

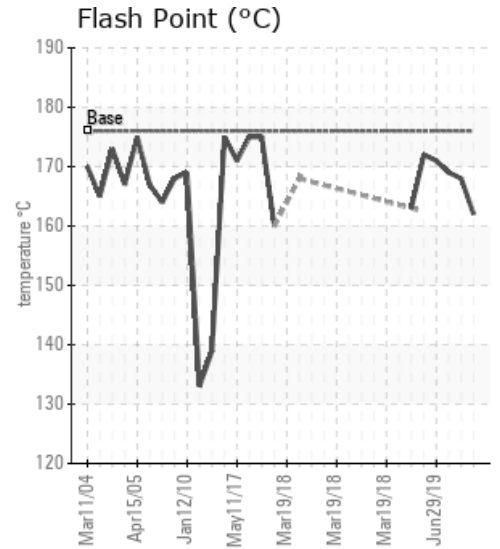
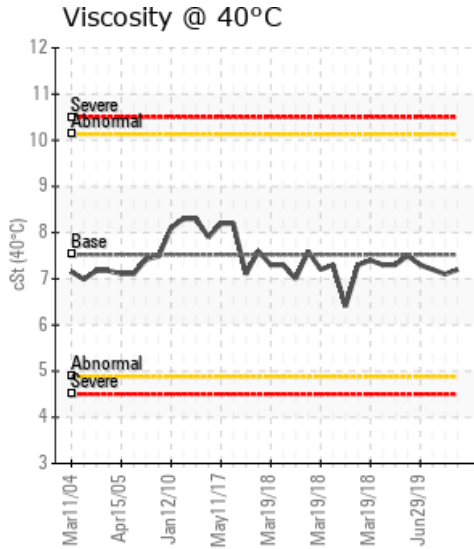
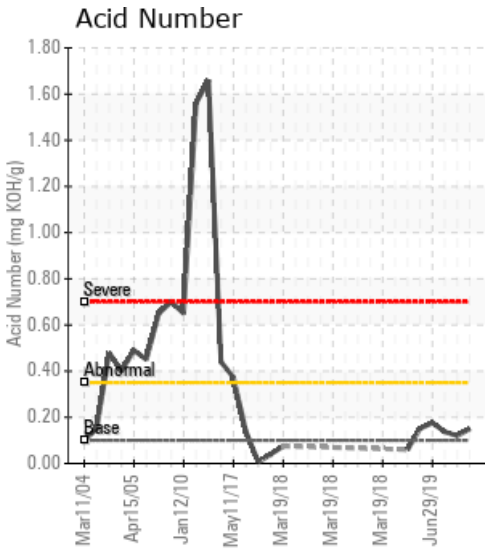
POWDER SLUSH HOT OIL

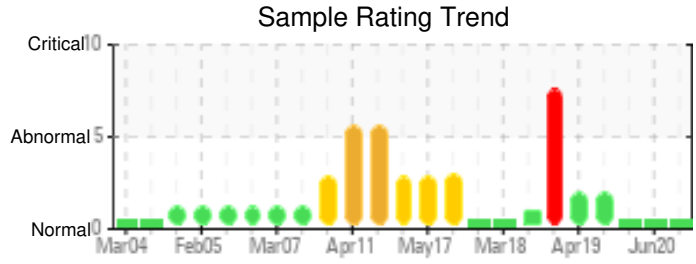
Customer: PTRHTF30023	System Information	Sample Information
INOAC INTERIOR SYSTEMS 575 JAMES STREET SOUTH ST MARYS, ON N4X 1B9 Canada Attn: ANDREW COCKBURN Tel: (519)349-3323 E-Mail: ANDREW.COCKBURN@JCI.COM	System Volume: 14000 ltr Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO LT Make: BP&R CONSTRUCTION	Lab No: 02390938 Analyst: Adam Koscielak Sample Date: 11/26/20 Received Date: 12/03/20 Completed: 12/08/20 Adam Koscielak adam.koscielak@petrocanadalsp.com

Recommendation: 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.

Comments:

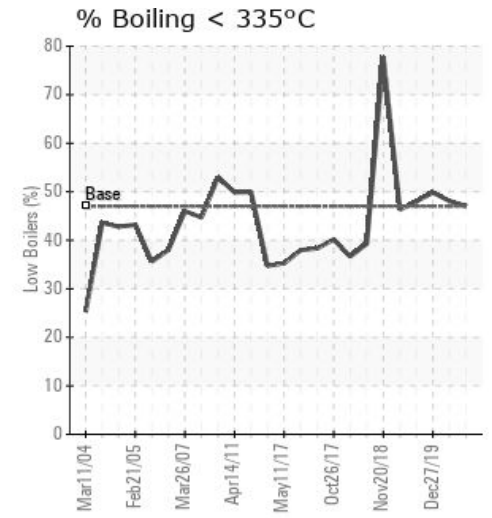
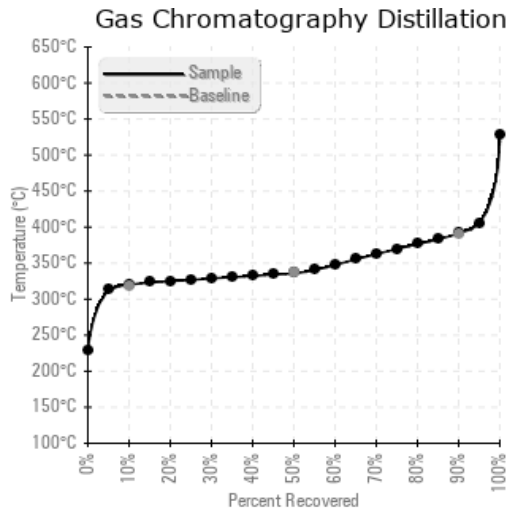
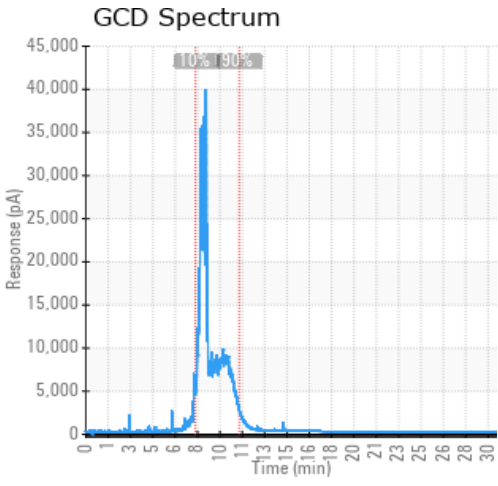
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/26/20	12/03/20	0h		324 / 162	18.4	7.2	0.15	0.052	608 / 320	637 / 336	737 / 392	47.03
06/29/20	06/30/20	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	0h	RETURN	336 / 169	10.2	7.2	0.137	0.176	605 / 318	634 / 335	728 / 387	49.83
06/29/19	07/08/19	0h		340 / 171	9.9	7.3	0.176	0.034	604 / 318	637 / 336	735 / 391	48.01
04/17/19	04/22/19	0h	RETURN	342 / 172	9.1	7.5	0.151	0.035	606 / 319	639 / 337	740 / 393	46.30
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
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
06/29/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0
04/17/19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	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	
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.
06/29/19	Current sample from the Hot Oil side is consistent with Calflo LT. No issues with the GCD profile, Viscosity, Total Acid number or additives. Parameters are consistent with Calflo LT. Flash point is consistent with the typical for Calflo LT. Calflo LT fluid is suitable for continued service. Sample at next interval. (GCD) % < 335°C is abnormally high.
04/17/19	Hot Oil side sample indicates low boilers have been reduced from the previous 70% value to 46.30, which is much closer to the typical level of approx. 40% for Calflo LT. GCD graph does show some evidence of high boilers due to the cracking of the fluid due to previous operational procedures, which have now been changed. Viscosity, flash, additive and wear metals are typical for this product. Resample again at 6 months to monitor Calflo LT fluid condition. (GCD) % < 335°C is abnormally high.

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