

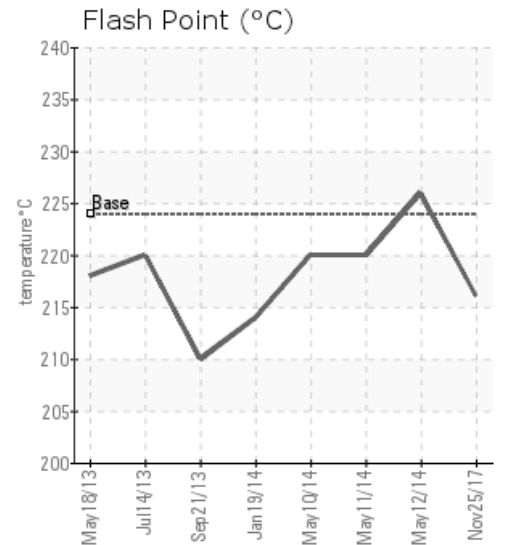
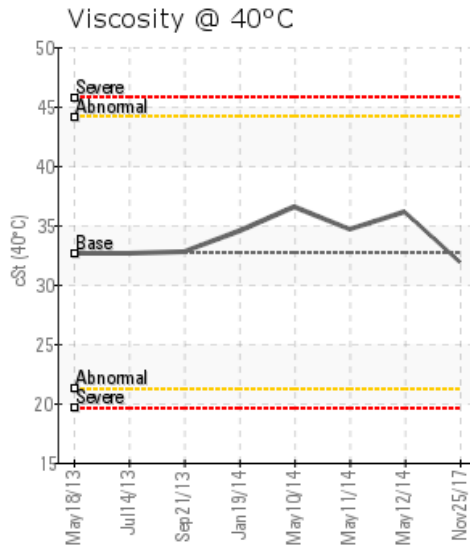
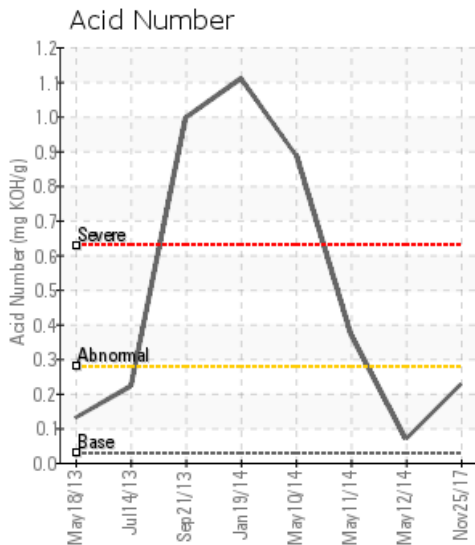
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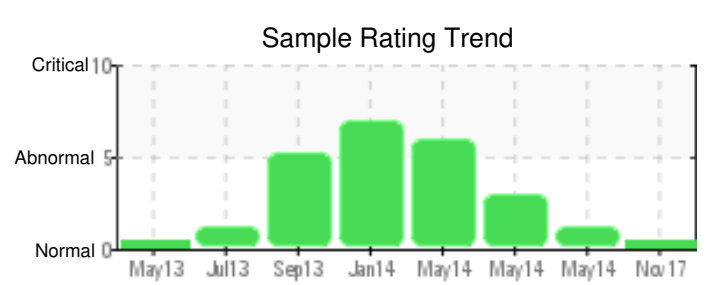
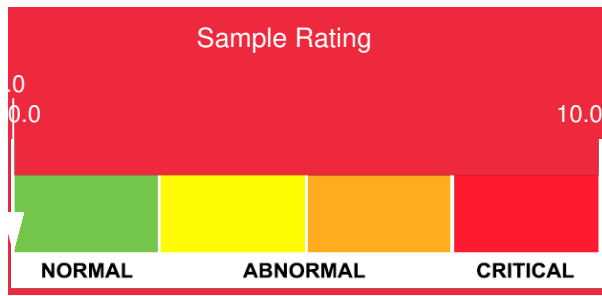
Customer: PTRHTF60017	System Information	Sample Information
DAISHINKAKO CO. LTD 1-18-22 HIGASHI - NAKAJIMA OSAKA, 533-0033 Japan Attn: Tomohiko Kimura Tel: (810)663-2507 x:14 E-Mail: kimura@daishinkako.com	System Volume: 28 ltr Bulk Operating Temp: 356F / 180C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: MATSUI MFG CO.	Lab No: 02193086 Analyst: Yutong Gao Sample Date: 11/25/17 Received Date: 01/17/18 Completed: 01/30/18 To discuss this report contact Yutong Gao at (403)873-1876

Recommendation: The current fluid has normal viscosity, acid number, flash point and distillation points. The water and solid contents are all low. Please take one sample in 12 months to monitor the conditions.

Comments:

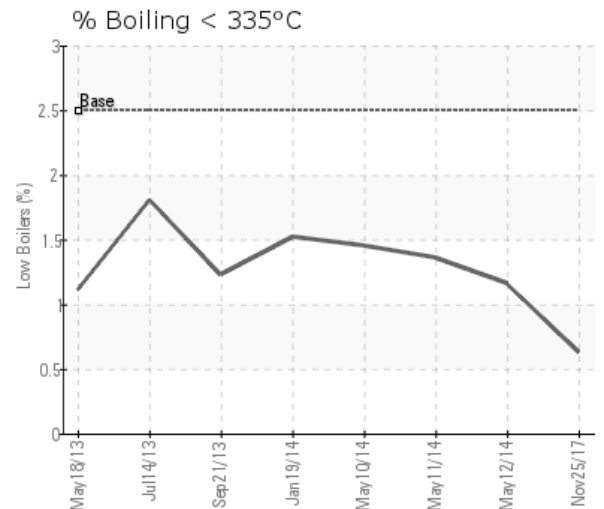
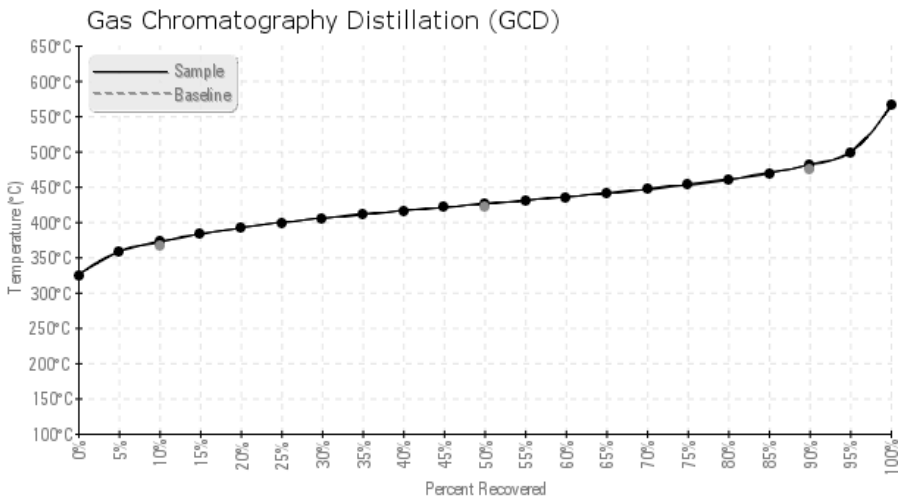
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/25/17	01/17/18	0h		421 / 216	3.3	31.9	0.228	0.029	701 / 372	798 / 426	898 / 481	0.63
05/12/14	05/21/14	1h	BOTTOM	439 / 226	0.00	36.1	0.07	0.321	698 / 370	794 / 423	897 / 481	1.16
05/11/14	05/21/14	1h	BOTTOM	428 / 220	4.3	34.7	0.37	0.505	697 / 369	793 / 423	899 / 482	1.36
05/10/14	05/21/14	5664h	BOTTOM	428 / 220	41.0	36.6	0.89	0.930	695 / 368	789 / 421	902 / 484	1.45
01/19/14	01/27/14	3888h	BOTTOM	417 / 214	22.0	34.5	1.11	0.600	694 / 368	789 / 421	899 / 482	1.52
09/21/13	10/07/13	2112h		410 / 210	46.8	32.8	0.996	0.324	697 / 370	797 / 425	918 / 492	1.23
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5





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	
11/25/17	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	257	17
05/12/14	1	0	0	0	1	0	0	1	0	0	3	1	0	0	0	0	0	0	0	0	1	0	0	264	75
05/11/14	1	0	0	0	1	0	0	2	0	0	2	1	0	0	0	0	0	0	0	0	2	0	0	248	229
05/10/14	3	0	0	0	3	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	209	602
01/19/14	1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	215	599
09/21/13	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	220	390
<b>Baseline Data</b>			0	0						0			0	0					0					270	

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



### Historical Comments

05/12/14	The current fluid has good conditions, please take one sample every 6 months to monitor. Please investigate how Zinc get to the system. Zinc ppm level is high.
05/11/14	Think this is the new oil after the system drain without the flushing. There are still some old oxidized fluid left over in the system, so the new oil has the warning level of the TAN and Solid. Please flush the system during the oil change. Investigate the Zinc ingress. Keep monitoring the condition. Pentane Insolubles levels are abnormally high. Zinc ppm levels are severely high. Acid Number (AN) is abnormally high.
05/10/14	TAN and Solid levels are all very high. The severely high Zinc level indicate there is third party contamination. Please drain the current fluid, flush and fill the new fluid. Please take sample every 6 months to monitor the conditions.
01/19/14	The current oil has reached the end of its useful life because of the oxidation. Total Acid Number (TAN), Zn level and Solid level are high. The viscosity increases about 5.5%, which still provide not bad heat transfer efficiency. I recommend to drain the system thoroughly and refill with oil. Pentane Insolubles levels are high. Acid Number (AN) is high. Zinc ppm level is high.
09/21/13	The oxidation level indicate the oil has reached the end of its useful life. We notice however that the viscosity remains the same as fresh oil, thus providing important heat transfer efficiencies compared to Barreltherm 400 which quadrupled in viscosity over the same period. We recomend to drain the unit thoroughly and refill with oil. A full system cleaning does not appear to be needed based on the low solids content. Acid Number (AN) is severely high. Zinc ppm levels are severely high. (GCD) 90% Distillation Point is abnormally high.