

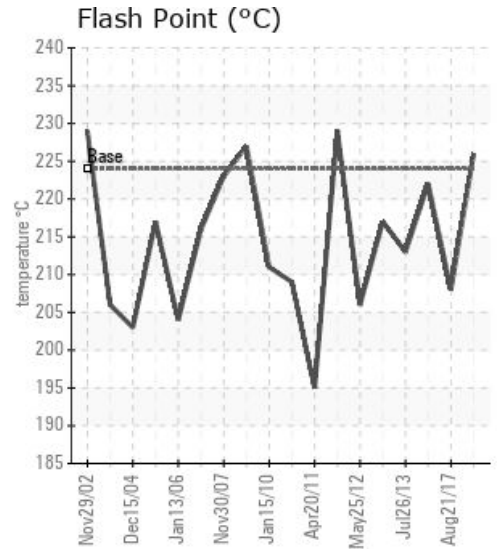
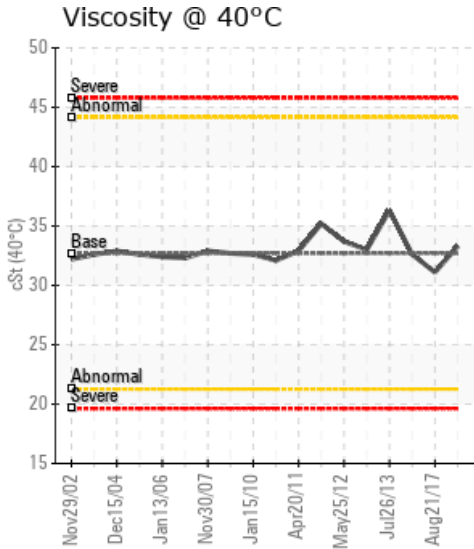
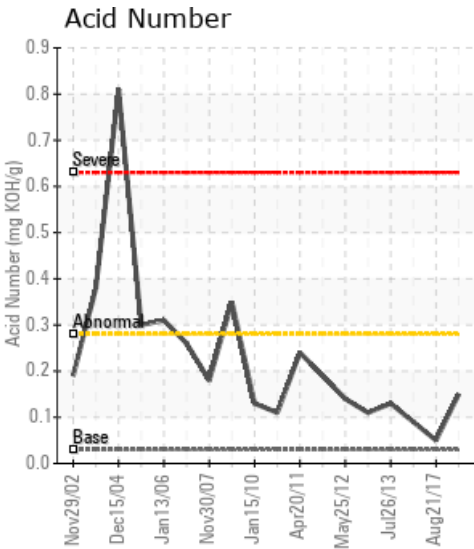
#3 Reactor Vessel Jackets] #3 REACTOR

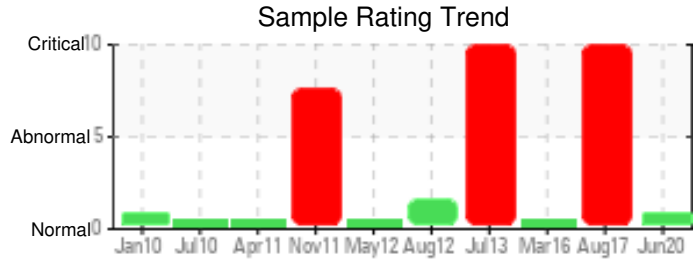
Customer: PTRHTF20087	System Information	Sample Information
Celanese Eva Performance Poly 4405-101 AVE. P.O. 428 EDMONTON, AB T5J 2K1 Canada Attn: Greg Hein Tel: E-Mail: greg.hein@celanese.com	System Volume: 0 ltr Bulk Operating Temp: 212F / 100C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make:	Lab No: 02364782 Analyst: Yutong Gao Sample Date: 06/22/20 Received Date: 07/15/20 Completed: 07/28/20 Yutong Gao yutong.gao@petrocanadalsp.com

Recommendation: The current fluid has normal viscosity, flash point and solid content. The Acid Number is low, meaning there is minimum oxidation. the 192 ppm Fe indicates that there is minor contamination, which need to be monitored in the future. Please continue to run the current fluid, pay attention to the system contamination control and take one sample in 12 months to compare the fluid conditions.

Comments:

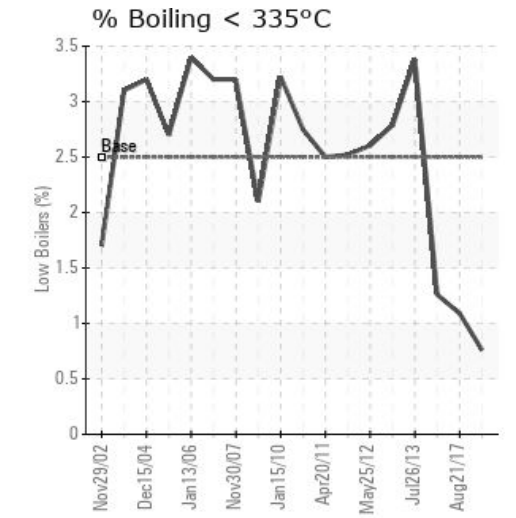
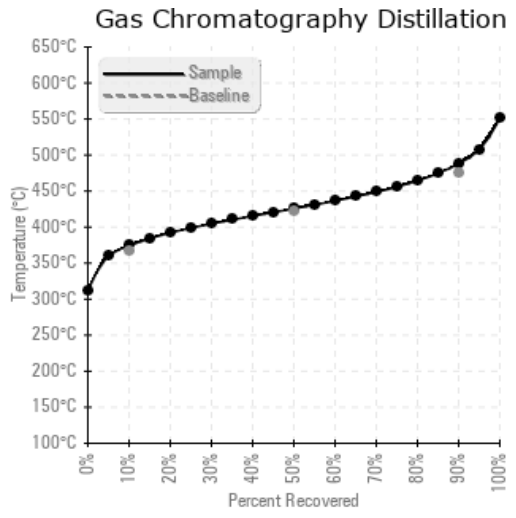
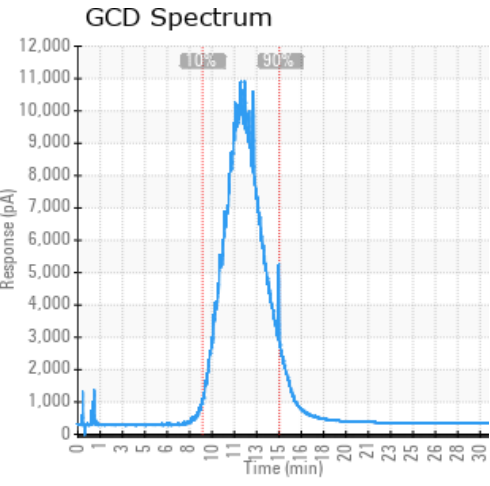
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
06/22/20	07/15/20	0h		439 / 226	18.4	33.3	0.15	0.069	705 / 374	798 / 426	911 / 488	0.76
08/21/17	08/28/17	0h	REACTOR	406 / 208	13.9	31.1	0.05	0.573	700 / 371	799 / 426	897 / 481	1.09
03/01/16	03/02/16	0h	REACTOR PIPING	432 / 222	7.2	32.6	0.09	0.090	699 / 370	800 / 427	899 / 482	1.26
07/26/13	08/01/13	0h	REACTOR DIPING	415 / 213	137.4	36.3	0.13	1.90	684 / 362	789 / 421	890 / 477	3.38
08/24/12	09/05/12		CALFLO TANK	423 / 217	86	33	0.11	0.463	689 / 365	785 / 419	888 / 475	2.786
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
06/22/20	192	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	247	0
08/21/17	1033	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	12	0	0	0	2	0	246	0
03/01/16	47	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	277	0
07/26/13	1359	1	0	0	2	2	0	0	0	0	6	0	2	0	0	0	10	0	0	2	2	0	203	2
08/24/12	336	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	200	0
Baseline Data			0	0						0			0	0					0				270	

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



Historical Comments	
08/21/17	Based on the analysis results, it appears the oil is experiencing some contamination. Please note the wear element iron (Fe). Iron typically comes from the system components. The pentane insolubles analysis result is the determination of contaminants in used heat transfer oils, and is used to determine the amount of insoluble materials such as oxidation by products, dirt, carbonaceous material, and system wear components in the fluid. These contaminants as a group are called pentane insolubles and the result is supported by the PQ result. It also appears that the sample results are not consistent with previous samples. Improper sampling techniques could result in unreliable test results. Iron ppm levels are severe. PQ levels are severe. Pentane Insolubles levels are severely high.
03/01/16	Results are normal. Resample at the next interval and continue to monitor the system.
07/26/13	There is high iron, solids and water in the sample. This is indicative of a poorly flushed sample port. Please flush at least 1 L of oil prior to collecting sample. The other test parameters indicate that the oil is in good condition and is suitable for further use. Please continue to sample on an annual basis. Iron ppm levels are severe. PQ levels are severe. Pentane Insolubles levels are severely high.
08/24/12	The oil results are close to previous results. It shows a long history of high solids in the oil and high iron content. If there is a filtration system on the oil we suggest to use finer filters to filter more of the insoluble particles that are visible in this testing. Re-sample at next normal interval

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