

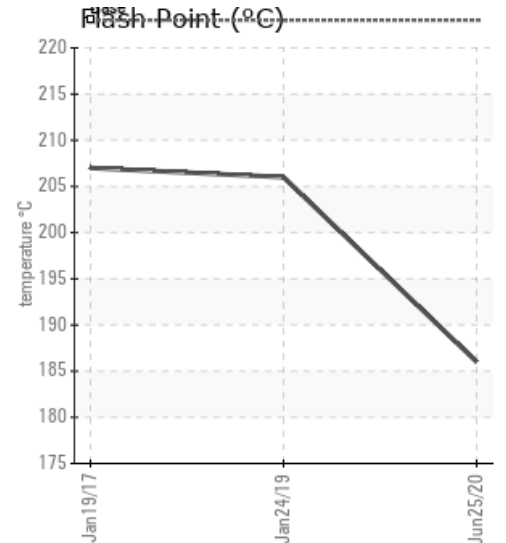
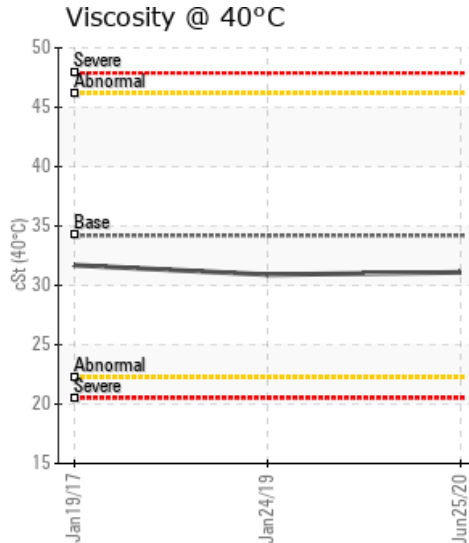
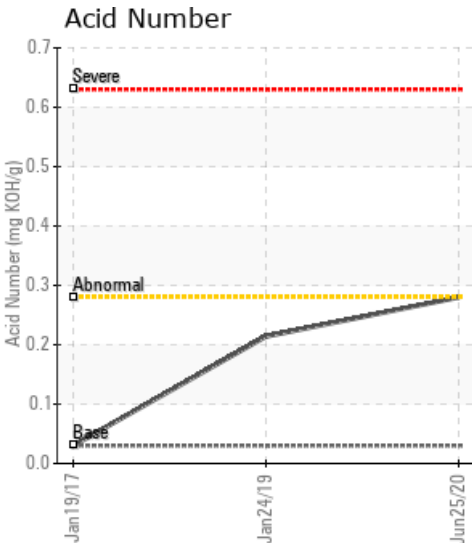
TPC450LN-MP

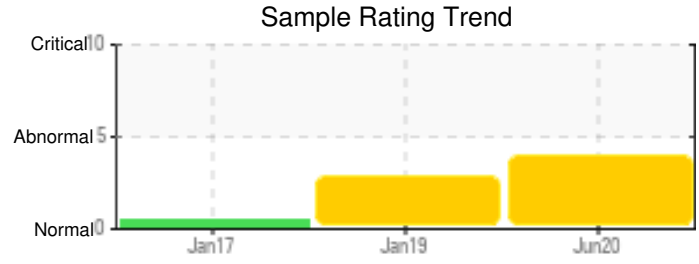
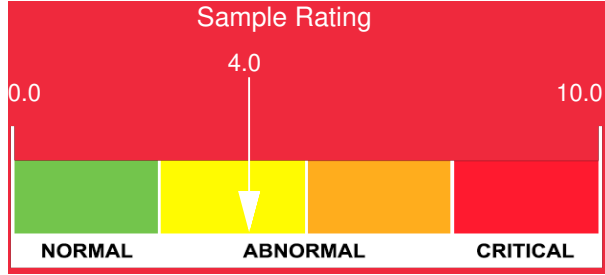
Customer: PTRHTF40122	System Information	Sample Information
VAN DE RAA MEAT & MORE BOLDERWEG 45 ALMERE, 1332 BA Netherlands Attn: Wilbert Snijers Tel: E-Mail: w.snijers@klt.nl	System Volume: 1000 ltr Bulk Operating Temp: 527F / 275C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: WANSON	Lab No: 02362792 Analyst: Matthias Voss Sample Date: 06/25/20 Received Date: 07/03/20 Completed: 07/09/20 Matthias Voss Matthias.Voss@petrocanadalsp.com

Recommendation:

Comments: Acid Number (AN) is severely high. COC Flash Point is marginally low, but GCD % < 335 °C is again on an appropriate level.

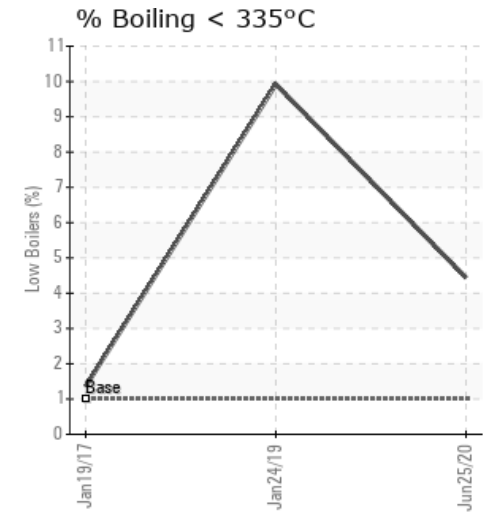
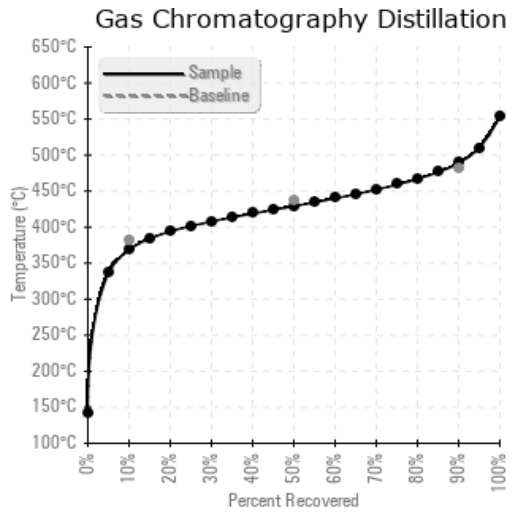
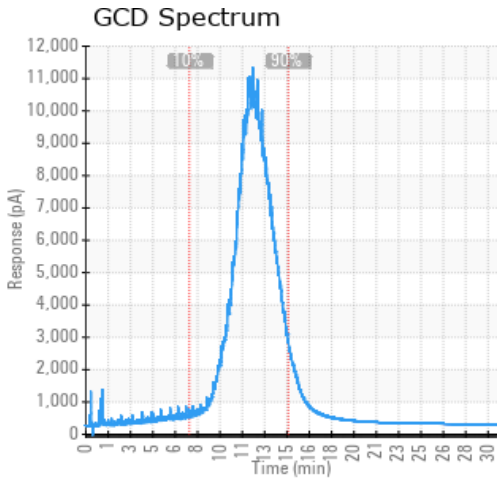
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC) °F/°C	Water (KF) ppm	Viscosity (40°C) cSt	Acid Number mg/KOH/g	Solids %wt	GCD 10% °F/°C	GCD 50% °F/°C	GCD 90% °F/°C	GCD % < 335°C %
	mm/dd/yy											
06/25/20	07/03/20	7y		367 / 186	52.9	31.1	0.28	0.168	695 / 369	804 / 429	912 / 489	4.44
01/24/19	02/04/19	5y		403 / 206	34.9	30.9	0.214	0.070	631 / 333	772 / 411	890 / 476	9.92
01/19/17	01/27/17	3y		405 / 207	12.4	31.7	0.03	0.052	710 / 376	806 / 430	909 / 487	1.36
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
06/25/20	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/24/19	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/19/17	20	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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

01/24/19	GCD shows 2 off spec results related to the lower end of the temperature range of the fluid. If safely possible try and vent the system to remove lighter materials and see if this has an impact. Some activity on the distillation curve to support this. No other items for concern, fluid is otherwise good, so recommend a vent (under safe conditions/procedure) and re test at normal frequency (GCD) 10% Distillation Point is abnormally low. (GCD) % < 335°C is marginally high.
01/19/17	Oil appears fit for further service. Suggest sample at next scheduled maintenance interval.

Petro-Canada makes no representation or warranty of any kind, either express or implied, as to the accuracy or completeness of the analysis and assumes no responsibility and shall have no liability whatsoever with respect to such analysis, or a party's use of it. Petro-Canada is a division of HollyFrontier Corporation.