

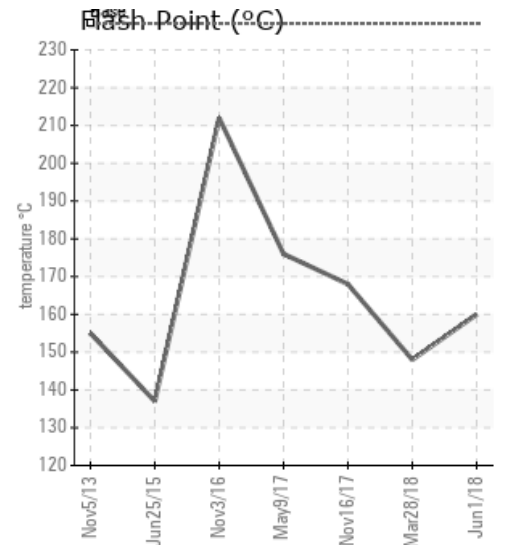
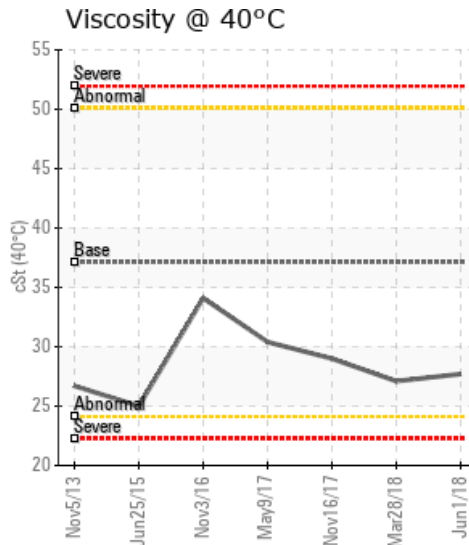
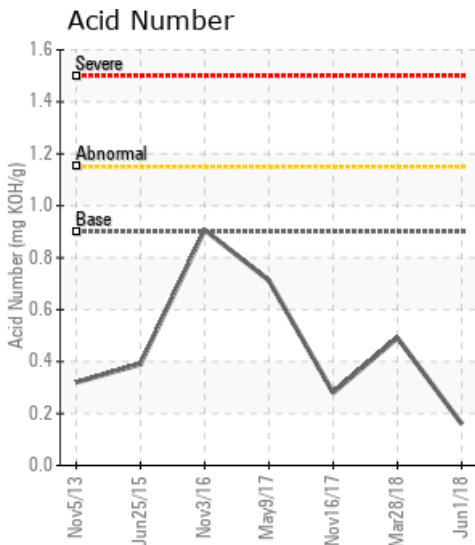
TPC 800 LNE

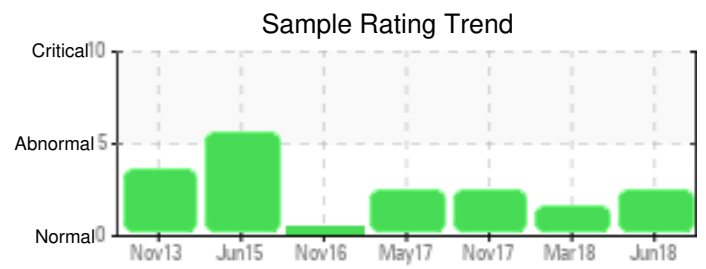
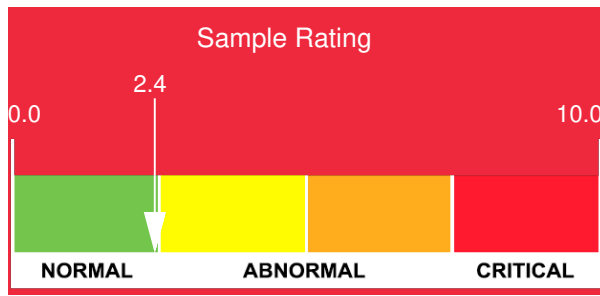
Customer: PTRHTF40011	System Information	Sample Information
ENKCO FOODGROUP BV WAAGWEG 5 OVERIJSEL HOLTEN, OVE NETHERLANDS Attn: Maintenance Manager Tel: E-Mail:	System Volume: 2500 ltr Bulk Operating Temp: 545F / 285C Heating Source: Blanket: Fluid: PETRO CANADA PURITY FG HEAT TRANSFER FLUID Make: WANSON	Lab No: 02221303 Analyst: Philip Riley Sample Date: 06/01/18 Received Date: 06/08/18 Completed: 06/12/18 To discuss this report contact Philip Riley at (440)124-4378171

Recommendation: COC Flash Point very low indeed. GCD backs up by showing high presence of light end materials. Recommend an oil change but if not possible then recommend to vent off the system (safely) and see if the flash point can be raised. This may have been done as it has improved from last sample. I would re-sample following venting to check

Comments: COC Flash Point is severely low. (GCD) 90% Distillation Point is abnormally low.

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	%
06/01/18	06/08/18	2y		320 / 160	18.9	27.7	0.16	0.173	686 / 363	778 / 414	858 / 459	3.27
03/28/18	04/09/18	1y		298 / 148	16.0	27.1	0.491	0.199	686 / 363	799 / 426	895 / 480	5.53
11/16/17	11/21/17	1y		334 / 168	30.5	29.0	0.28	0.240	694 / 368	803 / 428	896 / 480	4.89
05/09/17	05/12/17	6y		349 / 176	75.5	30.4	0.712	0.272	701 / 372	805 / 429	909 / 487	3.57
11/03/16	11/11/16	1y		414 / 212	48.6	34.1	0.907	0.153	721 / 383	810 / 432	899 / 481	1.23
06/25/15	07/02/15	5y		279 / 137	29.9	25.0	0.39	0.119	637 / 336	803 / 429	912 / 489	9.39
Baseline Data				459 / 237		37.12	0.90		721 / 383	807 / 431	892 / 478	1.5

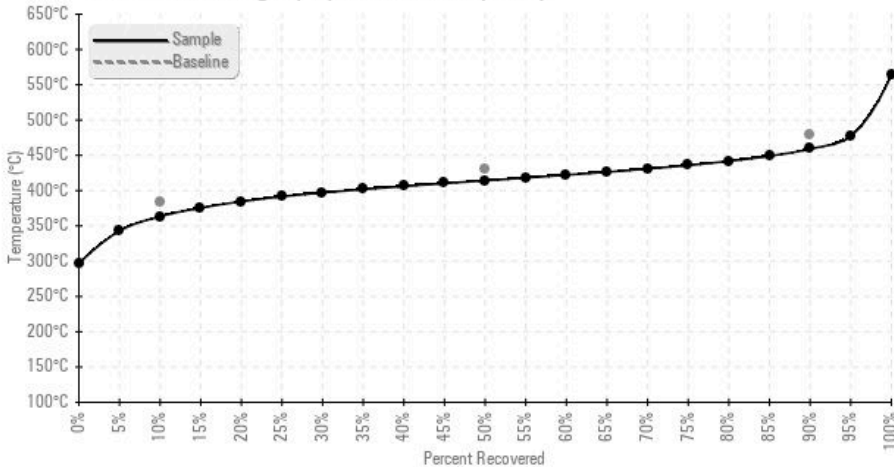




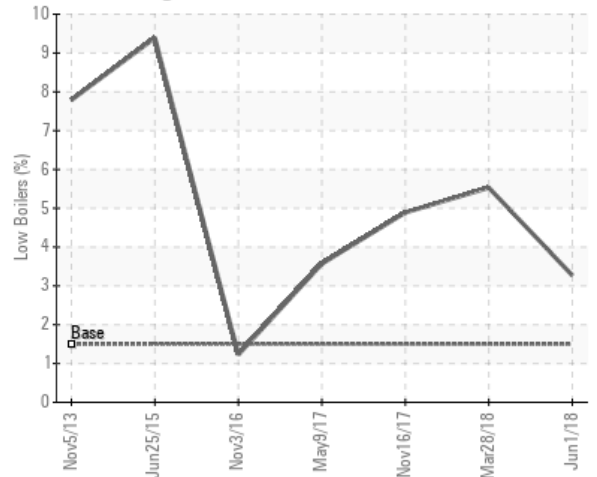
Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
06/01/18	55	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	23	0
03/28/18	36	0	0	0	13	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	35	1
11/16/17	46	1	0	0	34	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	49	1
05/09/17	30	0	0	0	10	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	43	1
11/03/16	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	25	0
06/25/15	5	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	18	0
Baseline Data			0	0						0			0	0					0				230	

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

Gas Chromatography Distillation (GCD)



% Boiling < 335°C



Historical Comments

03/28/18	Recommend Fluid change, flush and refill based on the flash point that has progressively reduced sample after sample. GCD backs up presence of a wide range of lower weight molecules COC Flash Point is severely low.
11/16/17	Recommend fluid change. Copper can act as oxidation catalyst and encourage degradation. Significant low boiling point molecules present affecting flash point that has deteriorated since previous sample. Copper ppm levels are abnormal. COC Flash Point is severely low.
05/09/17	Oil appears fit for further service, suggest sample at next scheduled maintenance interval. Copper ppm levels are noted. COC Flash Point is severely low.
11/03/16	The oil is in good condition and fit for further service. Suggest sample at next scheduled maintenance interval.
06/25/15	Low boilers identified by GCD have shown a lower than expected flash point - in cases such as these where 2 flash points are identified the lower flash point is always reported. This oil appears fit for further service at this time and if the small amount of low boilers can be removed this would assist in the quality of the oil in future. (GCD) 10% Distillation Point is severely low. COC Flash Point is severely low. (GCD) % < 335°C is marginally high.

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