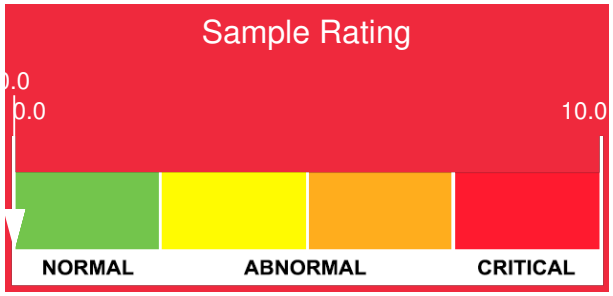
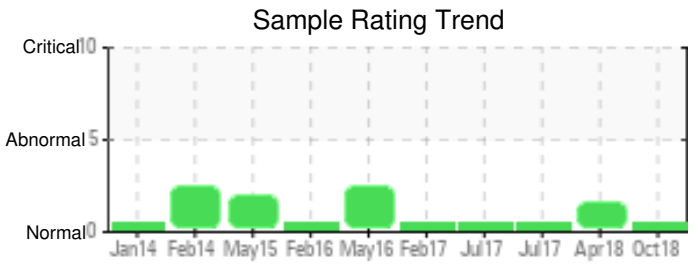


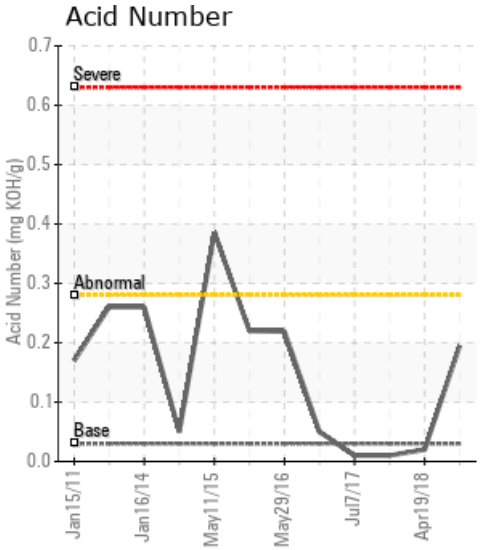

# LINE 2 HOT OIL SYSTEM

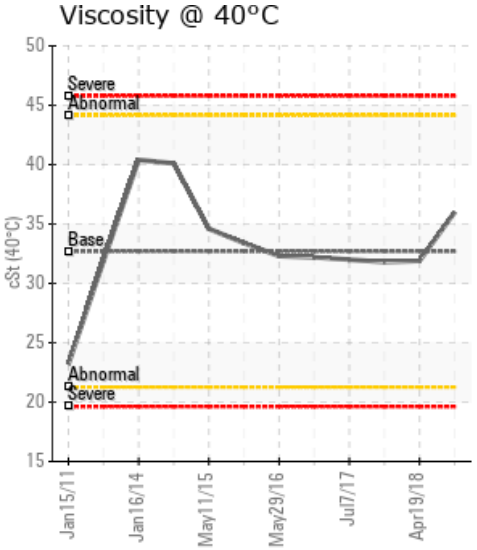
| Customer: PTRHTF10059 | System Information | Sample Information |
|---|---|---|
| CERTAINTEED - SAINT GOBAIN<br>11519 US RT 250 N<br>MILAN, OH 44846 USA<br>Attn: DAVE BLAKELY<br>Tel: (419)541-0843<br>E-Mail: dave.l.blakely@saint-gobain.com | System Volume: 1265 gal<br>Bulk Operating Temp: 480F / 249C<br>Heating Source:<br>Blanket:<br>Fluid: PETRO CANADA CALFLO AF<br>Make: FIRST THERMOL | Lab No: 02247160<br>Analyst: Gaston Arseneault<br>Sample Date: 10/11/18<br>Received Date: 10/24/18<br>Completed: 10/28/18<br>To discuss this report contact Gaston Arseneault at 973-986-6503 |

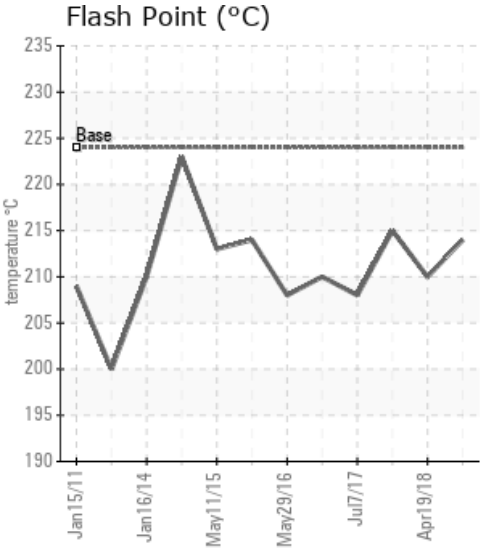
Recommendation: The Acid Number test jumped to 0.2. While this is still a very low value and the test itself carries a certain uncertainty when measuring low values, the jump from 0.02 to 0.2 is noticeable in that perhaps oxidation has begun. We will monitor this property and if the trend of increasing Acid Number continues we will recommend to take action. Resample in 6 months.

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 | % |
| 10/11/18 | 10/24/18 | 0y | | 417 / 214 | 14.3 | 36.0 | 0.195 | 0.207 | 694 / 368 | 786 / 419 | 880 / 471 | 0.00 |
| 04/19/18 | 04/27/18 | 0y | OFF OF HEADER | 410 / 210 | 6.1 | 31.9 | 0.02 | 0.277 | 690 / 365 | 790 / 421 | 883 / 473 | 2.28 |
| 07/12/17 | 07/28/17 | 0y | | 419 / 215 | 18.5 | 31.8 | 0.01 | 0.314 | 697 / 369 | 794 / 424 | 896 / 480 | 1.38 |
| 07/07/17 | 07/28/17 | 0y | | 406 / 208 | 15.1 | 32.0 | 0.01 | 0.289 | 696 / 369 | 794 / 423 | 895 / 479 | 1.43 |
| 02/07/17 | 02/15/17 | 0y | SIDE STREAM FLTR PRT | 410 / 210 | 8.7 | 32.2 | 0.05 | 0.145 | 696 / 369 | 793 / 423 | 900 / 482 | 1.18 |
| 05/29/16 | 06/07/16 | 0y | SEALNAT USE TANK PMP | 406 / 208 | 13.7 | 32.3 | 0.219 | 0.156 | 692 / 367 | 780 / 416 | 877 / 469 | 0.13 |
| Baseline Data | | | | 435 / 224 | | 32.7 | 0.03 | | 693 / 367 | 790 / 421 | 887 / 475 | 2.5 |

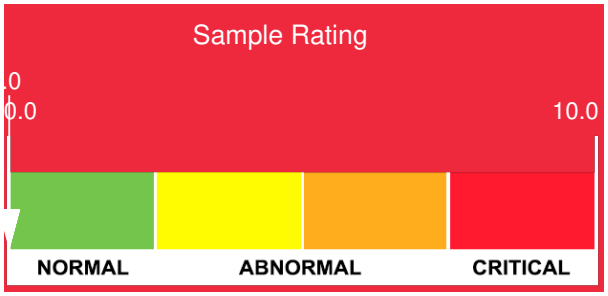


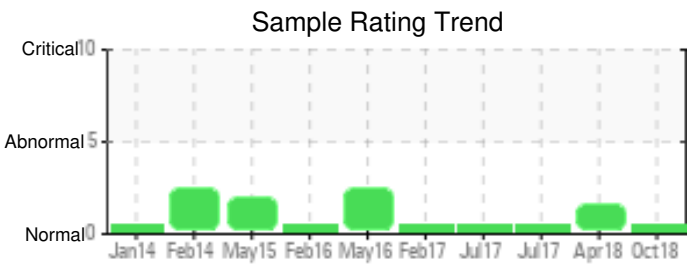



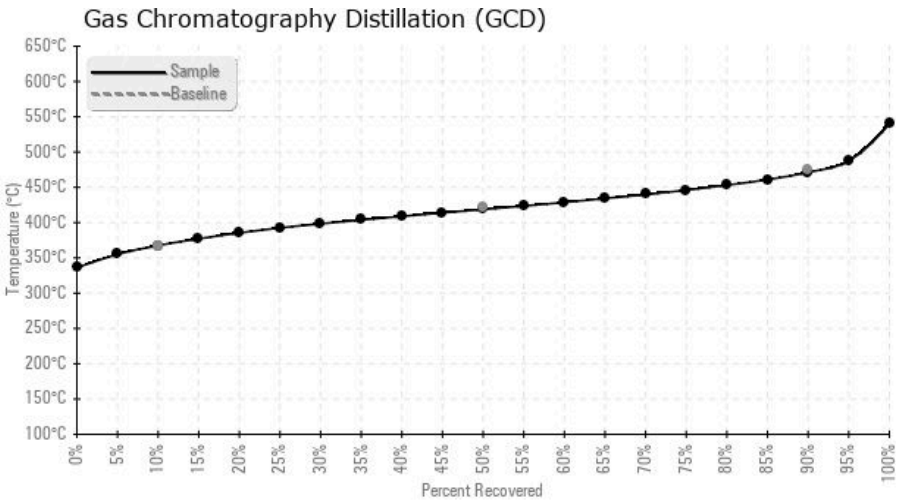
PETRO-CANADA LUBRICANTS

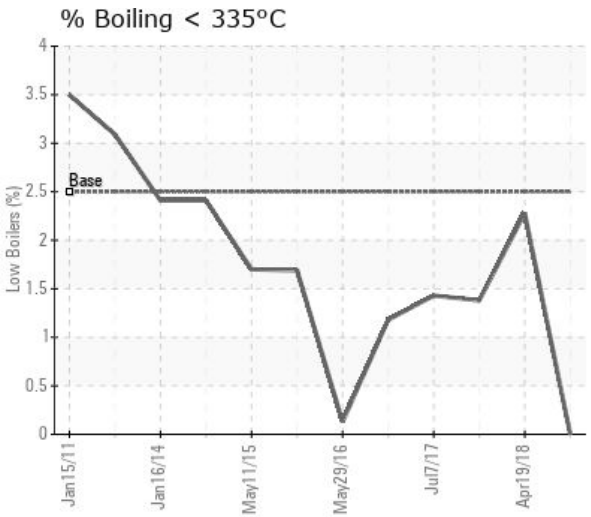



| Sample Date | Iron | Chromium | Nickel | Aluminum | Copper | Lead | Tin | Cadmium | Silver | Vanadium | Silicon | Sodium | Potassium | Titanium | Molybdenum | Antimony | Manganese | Lithium | Boron | Magnesium | Calcium | Barium | Phosphorus | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/11/18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 |
| 04/19/18 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 |
| 07/12/17 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 91 | 0 |
| 07/07/17 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 90 | 0 |
| 02/07/17 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 | 0 |
| 05/29/16 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 0 |
| Baseline Data | | | 0 | 0 | | | | | | 0 | | | 0 | 0 | | | | | 0 | | | | 270 | |

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




## Historical Comments

| | |
|---|---|
| 04/19/18 | The condition of the oil looks very good. Please continue to sample at the same 8-9 months frequency. |
| 07/12/17 | Everything looks excellent, nothing is flagged. Pls resample at next scheduled interval. |
| 07/07/17 | Everything looks excellent, nothing is flagged. Pls resample at next scheduled interval. |
| 02/07/17 | The age of the fluid is unknown but it showed as 14 years old in 2014. The fluid looks very dark but its condition doesn't look that bad. We do not want to condemn 1200 gals of fluid based on looks only but if problems described last year with deposits in piping in low lying areas then a good system cleaning to restore its overall good condition should be considered. |
| 05/29/16 | The fluid looks very dark but its condition is not as bad as in 2014. Solids are not alarmingly high, oxidation is present but not at levels worth flagging or indicative of major problems. It came to our attention however that the system shows deposits in low lying piping and those signs should not be ignored. This oil analysis is just another tool in the toolbox but the challenge is to determine what the inside looks like based on a 1qt sample of hot oil. |