

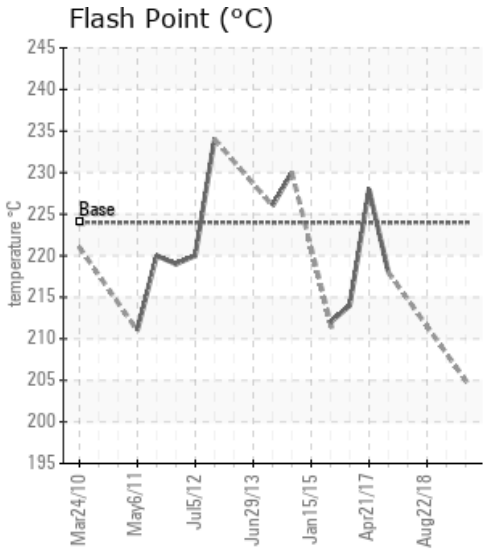
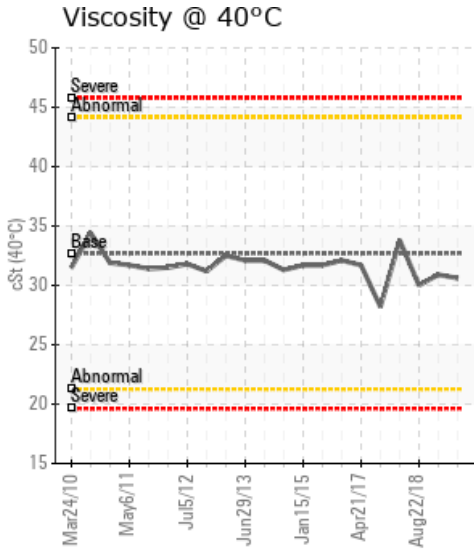
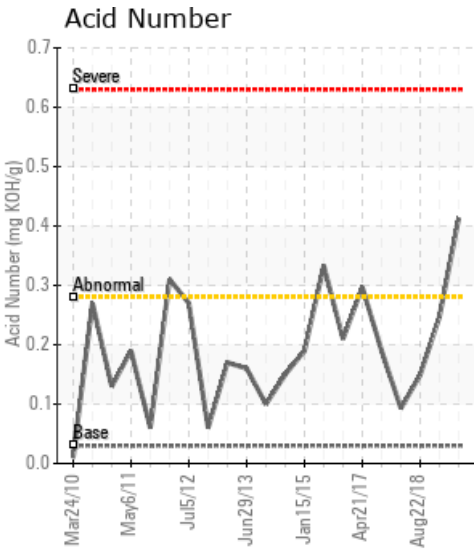
SEDNA DESGAGNES

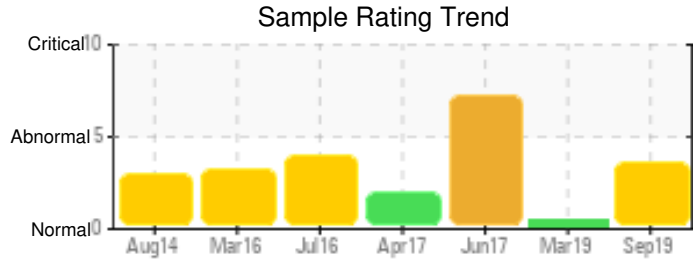
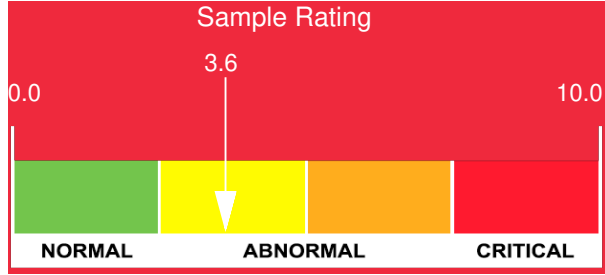
| Customer: PTRHTF30015 | System Information | Sample Information |
|--|--|---|
| Transport Desgagnes Inc. 21 Marche Champlain Suite 100 Quebec City, QC G1K 8Z8 Canada Attn: Sonia Desmarais Tel: (418)692-1000 E-Mail: | System Volume: 4300 ltr Bulk Operating Temp: 347F / 175C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: AALBORG INC | Lab No: 02309314 Analyst: Pierre Castagne Sample Date: 09/05/19 Received Date: 09/19/19 Completed: 10/09/19 |

Recommendation: Le AN est très élevé, les fractions lourdes (GCD @90%) sont très élevées, les fractions moyennes (GCD @50%) sont élevée. Le calcium est très élevé, le soufre est très élevé. Investiguer s'il n'y a pas eu un léger mélange avec un autre type d'huile.

Comments: Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is abnormally high. Calcium ppm levels are abnormally high. (GCD) 50% Distillation Point is marginally high.

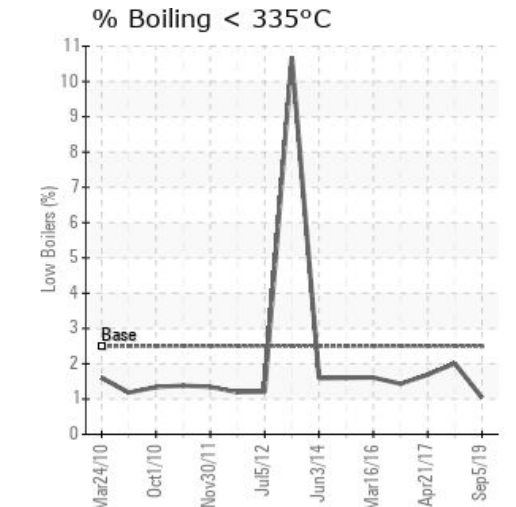
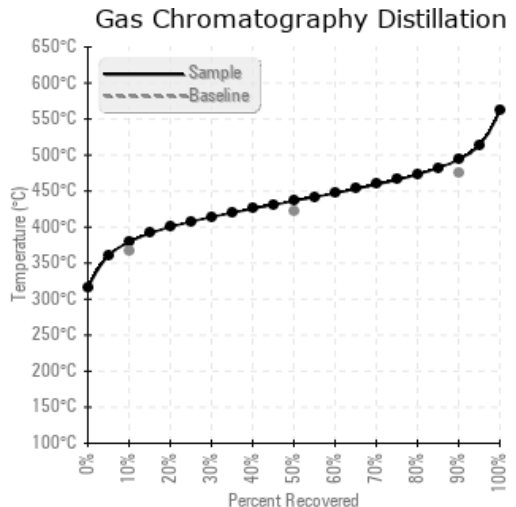
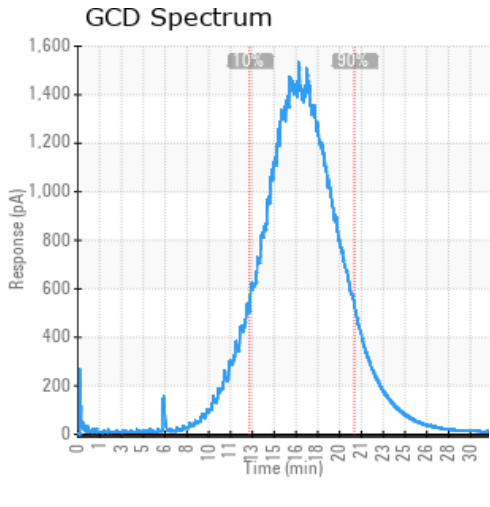
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 09/05/19 | 09/19/19 | 17139h | | 401 / 205 | 70.4 | 30.6 | 0.413 | 0.328 | 714 / 379 | 817 / 436 | 921 / 494 | 1.04 |
| 03/08/19 | 03/21/19 | 0h | | | | 30.9 | 0.247 | | | | | |
| 08/22/18 | 08/30/18 | 0h | | | | 30.0 | 0.149 | | | | | |
| 10/27/17 | 11/01/17 | 0h | | | | 33.8 | 0.093 | | | | | |
| 06/10/17 | 06/30/17 | 11000h | | 424 / 218 | 128.3 | 28.2 | 0.190 | 0.385 | 705 / 374 | 816 / 436 | 933 / 501 | 2.01 |
| 04/21/17 | 05/03/17 | 9924h | PORT SIDE | 442 / 228 | 202.4 | 31.7 | 0.297 | 0.057 | 704 / 374 | 810 / 432 | 912 / 489 | 1.69 |
| 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 |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 09/05/19 | 134 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 38 | 0 | 123 | 15 |
| 03/08/19 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 45 | 0 | 132 | 17 |
| 08/22/18 | 101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 52 | 0 | 168 | 21 |
| 10/27/17 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 225 | 29 |
| 06/10/17 | 236 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 31 | 0 | 76 | 9 |
| 04/21/17 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 20 | 0 | 62 | 6 |
| 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 | |
|---------------------|---|
| 03/08/19 | Lubritest recommends using HTTFL sample kits for heat transfer fluids. Please contact us at 1-800-268-2131 and provide a purchase order for \$245 + HST in order to conduct additional testing (boiling points @ 10%, 50%, and 90%, percent boiling < 335°C, and solids) to determine the suitability for continued use. All component wear rates are normal. ISO Cleanliness Code (ISO 4406:1999): 25/22/14; Cumulative particle counts >4µm = 175753, >6µm = 29556, >14µm = 101, >21µm = 21, >38µm = 0, >71µm = 0. There is no indication of any contamination in the component (unconfirmed). The condition of the fluid is acceptable for the time in service (unconfirmed). |
| 08/22/18 | Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service. |
| 10/27/17 | Lubritest recommends using HTTFL sample kits for heat transfer fluids. Please contact us at 1-800-268-2131 and provide a purchase order for \$245 + HST in order to conduct additional testing (boiling points @ 10%, 50%, and 90%, percent boiling < 335°C, and solids) to determine the suitability for continued use. All component wear rates are normal. ISO Cleanliness Code (ISO 4406:1999): 24/20/10; Cumulative particle counts >4µm = 98726, >6µm = 8167, >14µm = 7, >21µm = 2, >38µm = 0, >71µm = 0. There is no indication of any contamination in the component (unconfirmed). The condition of the fluid is acceptable for the time in service (unconfirmed). |
| 06/10/17 | La distillation GCD 90% est anormalement élevée. On note la présence de fractions lourdes dans l'huile. On note également un taux de calcium anormalement élevé (Ca=31 ppm) et d'eau (128ppm). Nous soupçonnons une contamination par l'eau de mer. L'indice PQ est anormalement élevé à 285. On observe un taux anormalement élevé de fer (Fe=236 ppm). Vérifier la possibilité de rouille (oxyde ferreux) à l'intérieur de votre réservoir. Tous les autres paramètres sont normaux. L'huile Calflo AF est en bon état et peut demeurer en service jusqu'au prochain échantillonnage à condition de corriger la contamination par l'eau de mer et son effet sur la rouille du réservoir. Nous recommandons de soumettre un nouvel échantillon dans 3 mois. PQ levels are severe. Iron ppm levels are abnormal. (GCD) 90% Distillation Point is severely high. Calcium ppm levels are abnormally high. |
| 04/21/17 | On note à nouveau la présence de fer (150 ppm) dans l'huile. Nous soupçonnons qu'il s'agit de rouille causée par la présence d'eau sous forme d'émulsion (202 ppm) dans l'huile. L'indice d'acidité (AN) est plus élevé que la normale. Le point de distillation GCD 90% est légèrement plus haut que la normale. Nous recommandons de vérifier votre système pour la présence de rouille dans votre réservoir et, le cas échéant, d'éliminer la contamination d'eau. Nous recommandons également de filtrer l'huile pour éliminer toute trace de rouille. Tous les autres paramètres sont normaux. L'huile Calflo AF est en bon état et peut demeurer en service jusqu'au prochain échantillonnage. Nous recommandons de soumettre un nouvel échantillon dans 12 mois. Acid Number (AN) is abnormally high. (GCD) 90% Distillation Point is marginally high. |

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