

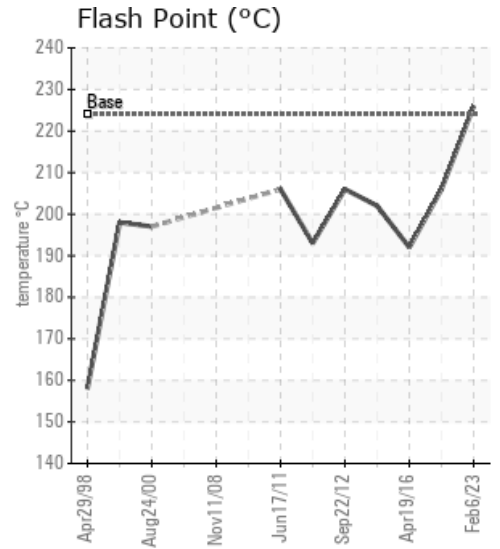
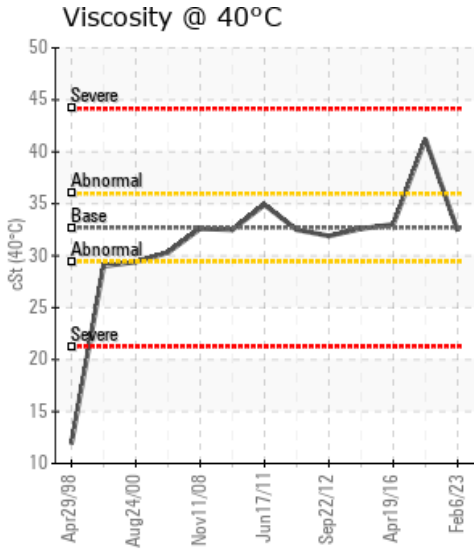
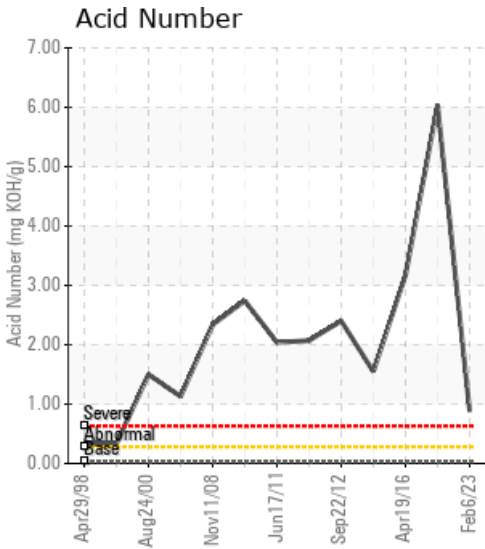
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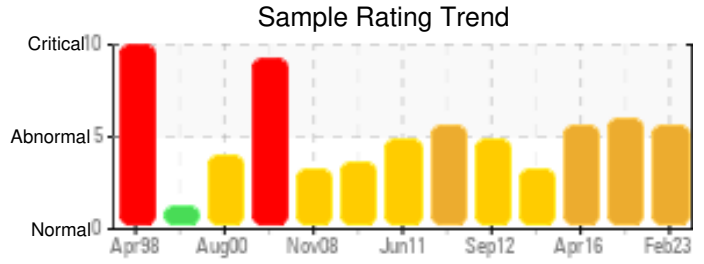
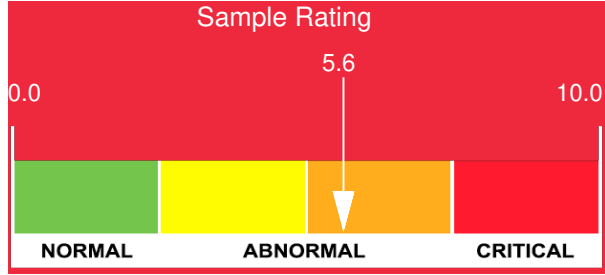
| Customer: PTRHTF10012 | System Information | Sample Information |
|---|--|---|
| GL VENEER 2224 E. SLAUSON AVENUE HUNTINGTON PARK, CA US Attn: Prakash/Marcel Mehta/Dhont Tel: (818)709-0492 E-Mail: purelubricants@earthlink.net | System Volume: 600 gal Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: PARKER BOILERS | Lab No: 02562408 Analyst: Carlos Nazario Sample Date: 02/06/23 Received Date: 06/06/23 Completed: 06/09/23 Carlos Nazario Carlos.Nazario@hfsinclair.com |

Recommendation: Sample test results showed 3 parameters with abnormal results; Iron presence, Insolubles and Acid number; However, other results as: Kinematic viscosity, COC Flash point and GCD did not show a significant HTF degradation. Previous samples results were analyzed and compared with current one and it was determined that this unit needs to be resampled; please purge 1 to 2 gallons of HTF before the sample is taken for its analysis; Also, include all the pertinent information as: Unit age, Comp age, Unit Volume, time on oil (years or months) time on filter, Sampling temperature, Sample port location, etc. Also mention if the system was refreshed or sweetened with fresh HTF and in what percentage from the total volume. New test results in this system are needed in order to get a good track on this fluid and to make comments and recommendations.

Comments: Iron ppm levels are abnormal. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high.

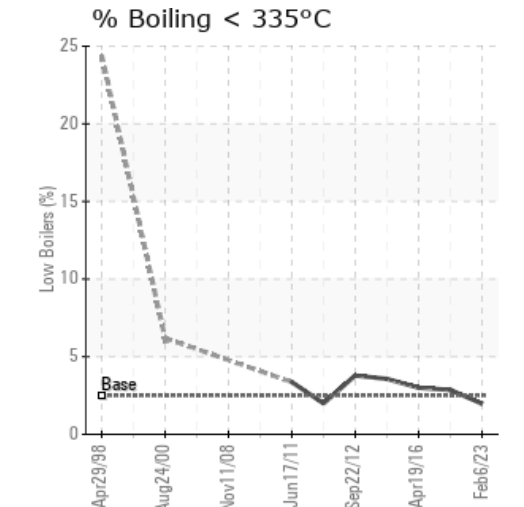
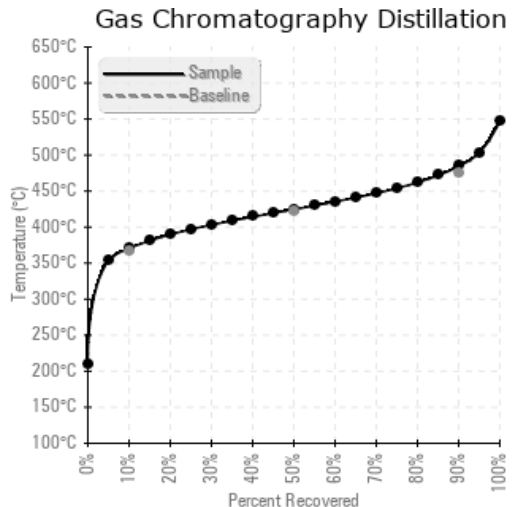
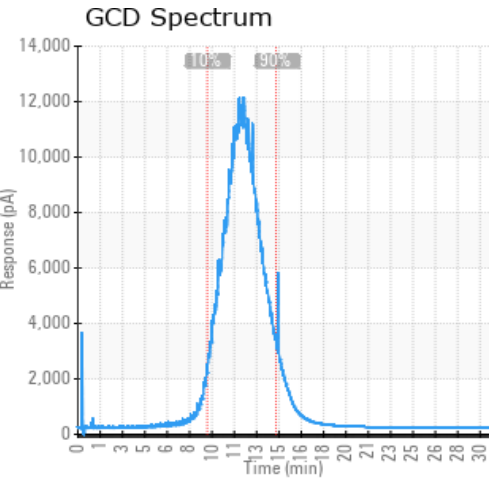
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 02/06/23 | 06/06/23 | 30.0d | | 439 / 226 | 79.9 | 32.4 | 0.88 | 0.989 | 699 / 370 | 796 / 425 | 904 / 485 | 1.97 |
| 10/13/22 | 10/24/22 | 3.0d | | 403 / 206 | 260.5 | 41.2 | 6.04 | 3.50 | 695 / 368 | 797 / 425 | 912 / 489 | 2.86 |
| 04/19/16 | 04/28/16 | 4.0d | | 378 / 192 | 126.7 | 33.0 | 3.17 | 1.09 | 688 / 365 | 794 / 423 | 905 / 485 | 3.00 |
| 10/12/13 | 10/28/13 | 1.0d | PLATTEN LINE | 396 / 202 | 41.7 | 32.6 | 1.55 | 0.257 | 682 / 361 | 788 / 420 | 888 / 476 | 3.57 |
| 09/22/12 | 10/03/12 | | NA | 403 / 206 | 141 | 31.9 | 2.4 | 0.818 | 687 / 364 | 790 / 421 | 892 / 478 | 3.786 |
| 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 |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 02/06/23 | 262 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 280 | 3 |
| 10/13/22 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 267 | 3 |
| 04/19/16 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 238 | 2 |
| 10/12/13 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 226 | 3 |
| 09/22/12 | 113 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 231 | 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 | |
|---------------------|--|
| 10/13/22 | AN is severely elevated in conjunction with Pentane insolubles elevated. The GCD 90% distillation point is elevated. This data indicates oxidation and has caused heavy sludge and insolubles in the system. The viscosity has elevated significantly confirming sludge and system fouling. Take another sample and purge oil before capturing sample to confirm results. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. Visc @ 40°C is abnormally high. (GCD) 90% Distillation Point is marginally high. |
| 04/19/16 | Acid number and pentane insoluble are very high. Recommend drain, flush and recharge system with fresh Calflo AF. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. COC Flash Point is marginally low. |
| 10/12/13 | Even though it appears the acid level (Acid Number) dropped a bit, it is still very high and exceeds condemning limits. Therefore we can expect it to rise even further. If an oil change was done then it appears a fair amount of the previously acidic oil was left in the system, or the fluid still sees contamination from an acidic material. If a system cleaning, flushing and refill has not taken place since the last sample we recommend to plan for it so the fluid can look healthy again. Acid Number (AN) is severely high. |
| 09/22/12 | The TAN is still rising and is now well beyond condemning limits. The insoluble solids are also exceeding severe warning limits. We have been advising for years to change this fluid and we say it again. The fluid needs to be replaced and the system thoroughly cleaned before production related issues start to appear if it hasn't started already. |

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