

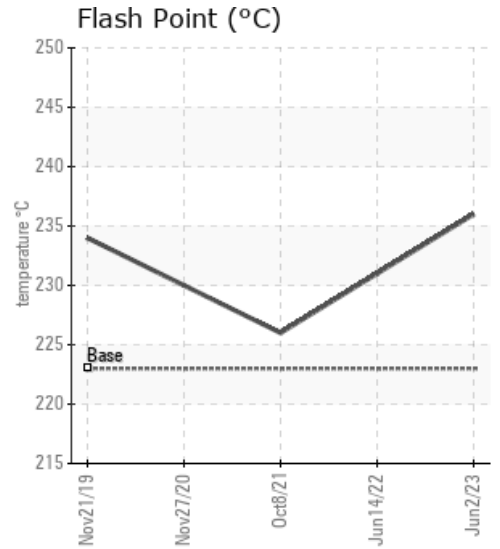
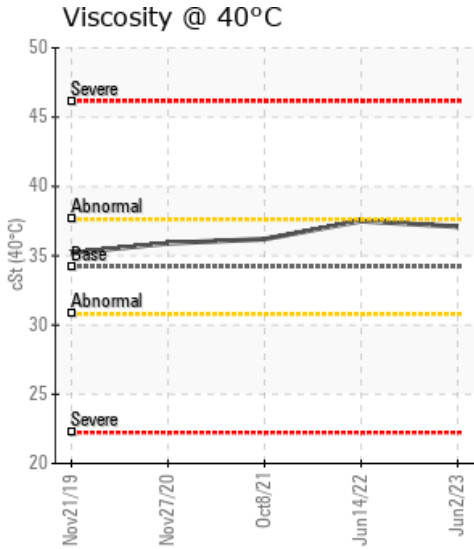
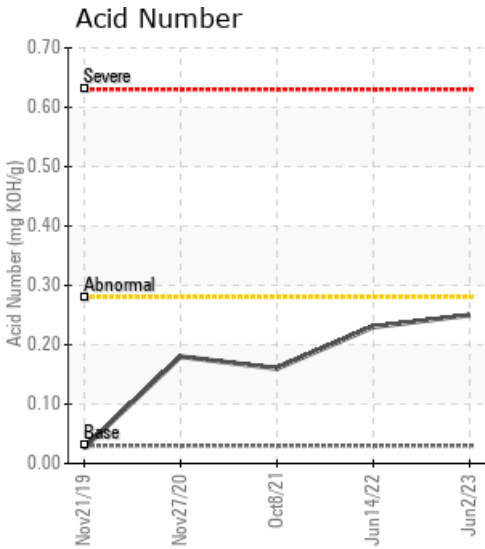
[Cenovus / LSD 6-20-49-18W5] H55002

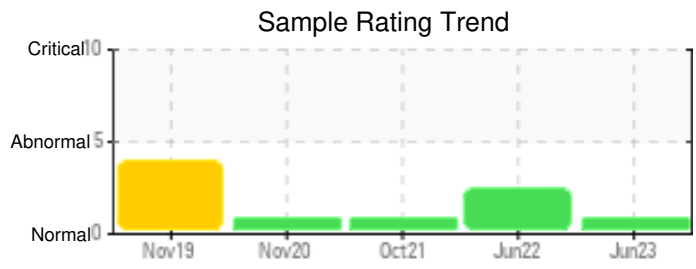
| Customer: PTRHTF20039 | System Information | Sample Information |
|---|--|--|
| BRENNTAG CANADA INC 3124-54TH AVENUE SE CALGARY, AB T2C 0A8 CA Attn: Matthew Kryska Tel: E-Mail: mkryska@brenntag.ca | System Volume: 23000 ltr Bulk Operating Temp: 417F / 214C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: ALCO | Lab No: 02570785 Analyst: Lyle Dach Sample Date: 06/02/23 Received Date: 07/18/23 Completed: 07/24/23 Lyle Dach lyle.dach@HFSinclair.com |

Recommendation: Sample results indicate that the fluid is in suitable condition for continued service. Resample in 12 months.

Comments: (GCD) 90% Distillation Point is abnormally high.

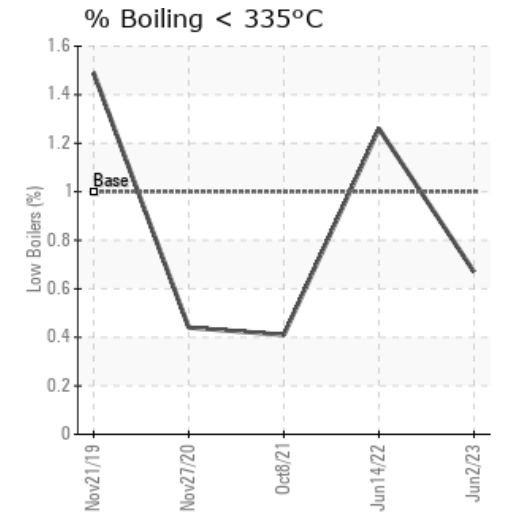
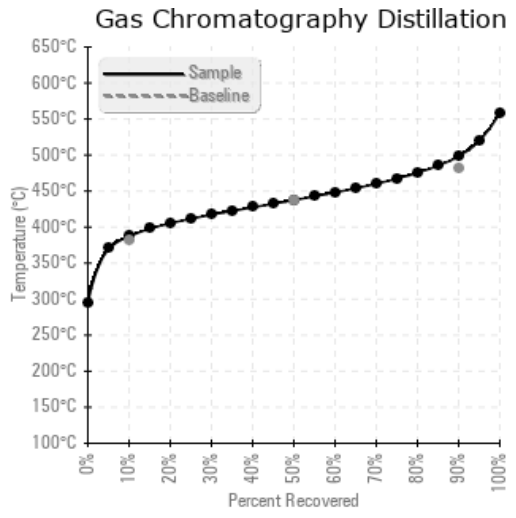
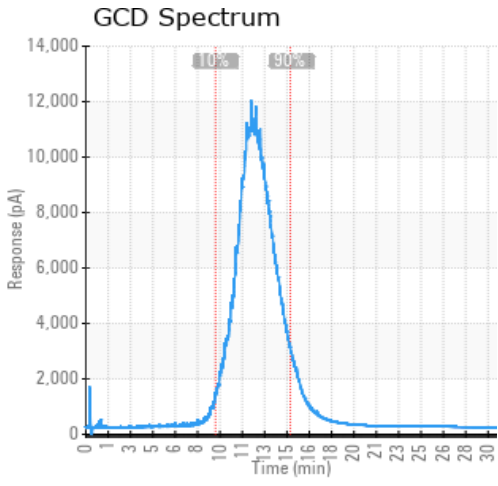
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|----------------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 06/02/23 | 07/18/23 | 48.0m | bef.slip stream fltr | 457 / 236 | 21.9 | 37.1 | 0.25 | 0.189 | 729 / 387 | 819 / 437 | 929 / 498 | 0.67 |
| 06/14/22 | 07/12/22 | 60.0m | Pump discharge | 448 / 231 | 15.7 | 37.5 | 0.23 | 0.780 | 724 / 384 | 815 / 435 | 923 / 495 | 1.26 |
| 10/08/21 | 11/12/21 | 24.0m | F-5530-2 | 439 / 226 | 7.2 | 36.2 | 0.16 | 0.170 | 730 / 388 | 819 / 437 | 928 / 498 | 0.41 |
| 11/27/20 | 12/18/20 | 14.0m | Heat medium return | 446 / 230 | 31.6 | 35.9 | 0.18 | 0.302 | 729 / 387 | 819 / 437 | 929 / 499 | 0.44 |
| 11/21/19 | 12/03/19 | 30.0m | OUTSIDE SIGHT GLASS | 453 / 234 | 375.9 | 35.2 | 0.026 | 0.139 | 698 / 370 | 792 / 422 | 908 / 487 | 1.49 |
| 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 |
|----------------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 06/02/23 | 16 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06/14/22 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10/08/21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11/27/20 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11/21/19 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 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

| | |
|----------|--|
| 06/14/22 | Pentane insolubles are beyond recommended limit, all other parameters are at safe levels. Resample to confirm this test levels. Please ensure the sample lines are purged properly and watch for external contamination when collecting samples. Pentane Insolubles levels are severely high. (GCD) 90% Distillation Point is marginally high. |
| 10/08/21 | Sample results indicate that the fluid is in suitable condition for continued service. 90% distillation point is slightly high ensure blanket gas is on and functioning properly. Resample in 12 months. (GCD) 90% Distillation Point is abnormally high. |
| 11/27/20 | Fluid is in very good condition overall. The GCD 90% is a little higher than normal which is likely caused by some oxidation that has taken place - not severe. Continue to submit annual samples to proactively monitor fluid condition. |
| 11/21/19 | This sample indicates the presence of water in the sample. Viscosity, Flash Point and GCD are all in the normal range. Resample in 6 months. Water contamination levels are marginally high. Water contamination levels are marginally high.. ppm Water contamination levels are marginally high. |

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