

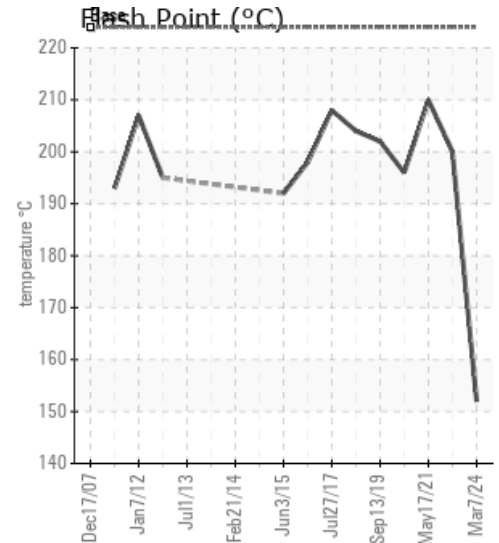
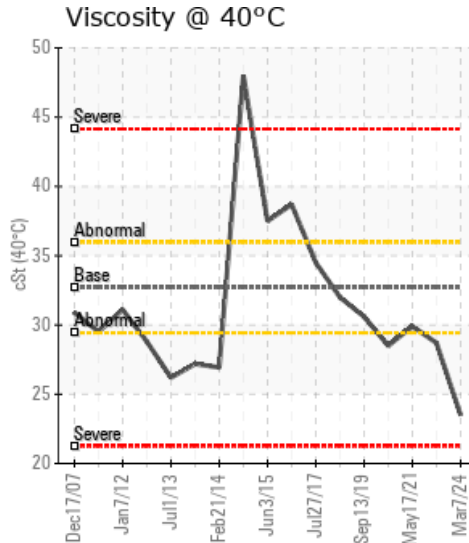
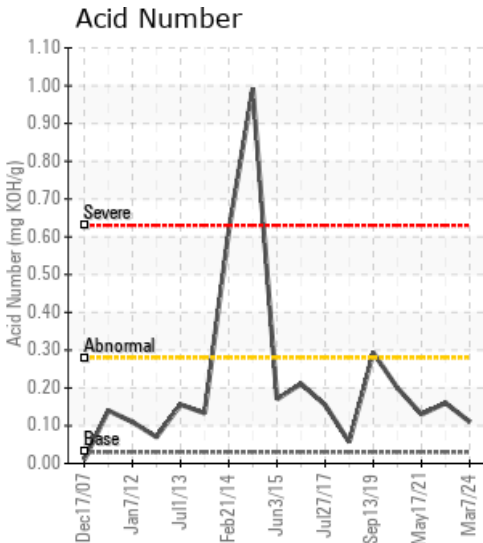
BACK END

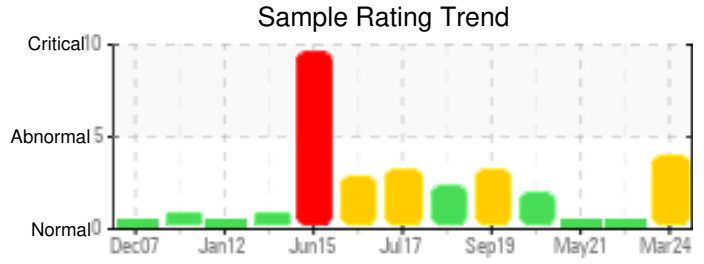
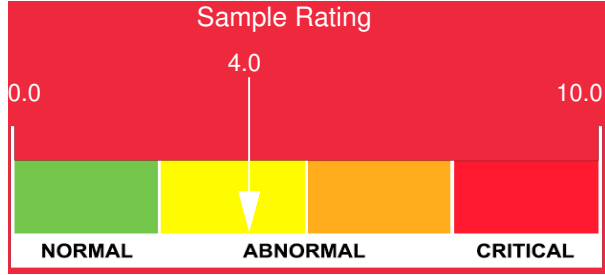
| Customer: PTRHTF10037 | System Information | Sample Information |
|--|---|--|
| CERTAINTEED ROOFING 200 SIERRA DR PEACHTREE CITY, GA 30269 US Attn: John Panuski Tel: E-Mail: john.panuski@saint-gobain.com | System Volume: 1300 gal Bulk Operating Temp: 600F / 316C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: HEATEC | Lab No: 02624784 Analyst: Manny Garcia Sample Date: 03/07/24 Received Date: 03/26/24 Completed: 03/28/24 Manny Garcia manuel.garcia@HFSinclair.com |

Recommendation: This system should be vented to attempt to mitigate the issues with the GCD % < 335oC values and the severely low Flash Point. Once the system has been maintained, please re-submit another fluid sample. & if the corrections have not improved the fluid conditions, we recommend a full fluid change-out for plant & personnel safety reasons.

Comments: COC Flash Point is severely low @ 152oC or 72oC lower than the design parameters of the fluid. These are very dangerous levels for a Heat Transfer Fluid. Visc @ 40°C is abnormally low @ 23.5 CsT @40oC. (GCD) % < 335°C is marginally high.

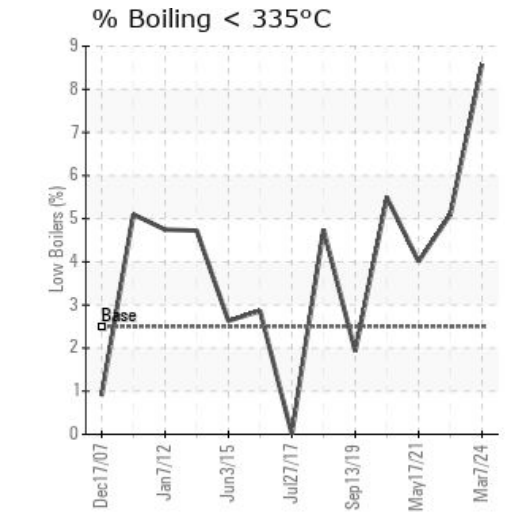
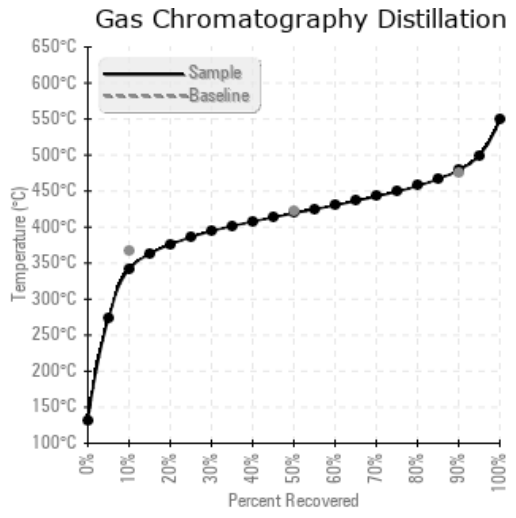
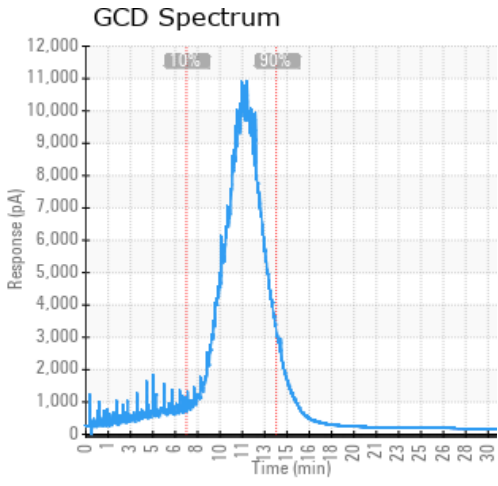
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 03/07/24 | 03/26/24 | 0.0y | BACK OF HEATER | 306 / 152 | 29 | 23.5 | 0.11 | 0.069 | 647 / 342 | 786 / 419 | 894 / 479 | 8.58 |
| 07/28/23 | 08/04/23 | 6.0y | back of heater | 392 / 200 | 22.5 | 28.7 | 0.16 | 0.125 | 677 / 359 | 794 / 423 | 904 / 485 | 5.09 |
| 05/17/21 | 06/08/21 | 4.0y | Main return | 410 / 210 | 21.2 | 29.9 | 0.13 | 0.106 | 681 / 361 | 782 / 417 | 891 / 477 | 4.01 |
| 07/26/20 | 08/13/20 | 3.0y | MAIN RETURN | 385 / 196 | 17.4 | 28.5 | 0.20 | 0.264 | 676 / 358 | 793 / 423 | 904 / 484 | 5.49 |
| 09/13/19 | 10/04/19 | 2.0y | MAIN RETURN | 396 / 202 | 3.0 | 30.6 | 0.293 | 0.206 | 702 / 372 | 812 / 433 | 926 / 496 | 1.93 |
| 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 |
|----------------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 03/07/24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 |
| 07/28/23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 1 |
| 05/17/21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 |
| 07/26/20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 0 |
| 09/13/19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 |
| 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 | |
|---------------------|--|
| 07/28/23 | Oil is in satisfactory conditions. Please re-submit sample in July 2024, Very light white metals visible in sample, but not affecting performance. Any system filters (if any) should be changed. |
| 05/17/21 | Fluid is suitable for continued use and in EXCELLENT condition after 4 years of use. Please re-submit sample mid-year 2022. |
| 07/26/20 | The results indicate no asphalt leak or contamination. The viscosity is getting a little low, so at some point during the year before the next sample, maybe do some venting of the light ends out of the system and replacing the volume lost with fresh fluid would help maintain fresh-oil like properties. |
| 09/13/19 | Despite its dark appearance, the oil properties are normal. Flash point is strong, water is barely detectable, metals analysis and the Vanadium (asphalt) we saw in previous years is disappearing. The acid number is noticeable so we suggest to re-sample in 6 months instead of waiting a whole year, just to monitor the situation. Acid Number normally means fluid oxidation, so check the nitrogen blanket to make sur the expansion tank contains no air. (GCD) 90% Distillation Point is severely high. Acid Number (AN) is abnormally high. |

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