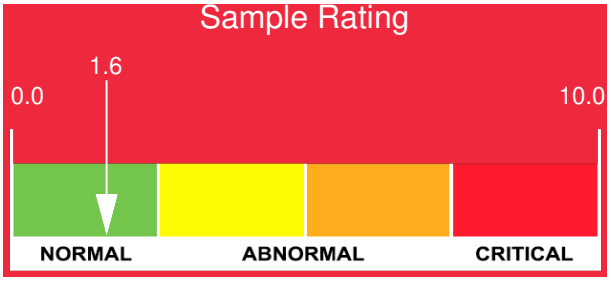
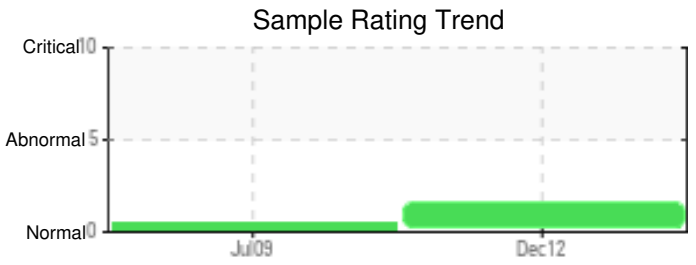


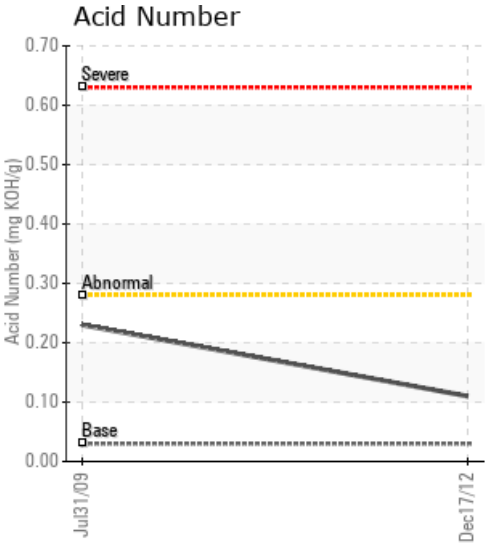

# HEAT TRANSFER SYSTEM

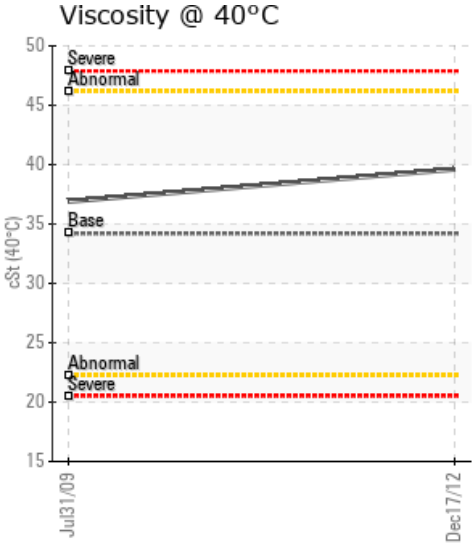
| Customer: PTRHTF10022 | System Information | Sample Information |
|---|---|---|
| LAKESIDE INDUSTRIES<br>11125 DURGIN RD S.E.<br>OLYMPIA, WA 98513 US<br>Attn: HAROLD NICKEL<br>Tel: (425)313-2686<br>E-Mail: | System Volume: 150 gal<br>Bulk Operating Temp: 350F / 177C<br>Heating Source:<br>Blanket:<br>Fluid: PETRO CANADA PETRO-THERM<br>Make: GENCOR | Lab No: 01831962<br>Analyst: Michael Kaufman<br>Sample Date: 12/17/12<br>Received Date: 04/19/13<br>Completed: 04/23/13<br>Michael Kaufman<br>mkaufman@suncor.com |

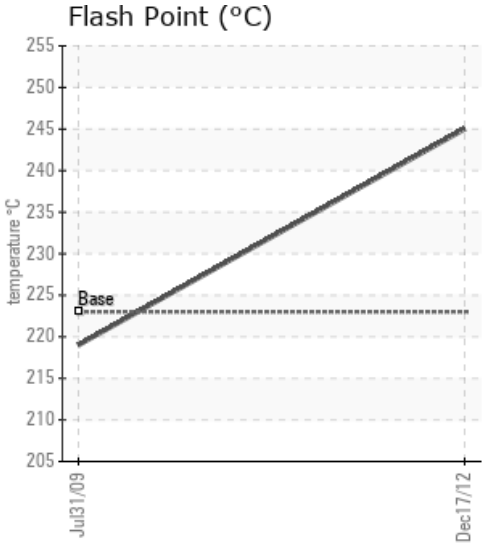
Recommendation: Overall sample looks good. The Pentane Insolubles are severely high, indicating that the sample has been potentially contaminated with non-metallic solids. If you feel that this is a truly representative sample of the fluid in the system, then the source of the insolubles should be investigated. Solids can sometimes accumulate at the sampling port, as such the sample port should be flushed with at least 0.5 gal of oil before the sample is taken. Otherwise, please continue to sample at the normal interval.

Comments: Pentane Insolubles levels are severely high.

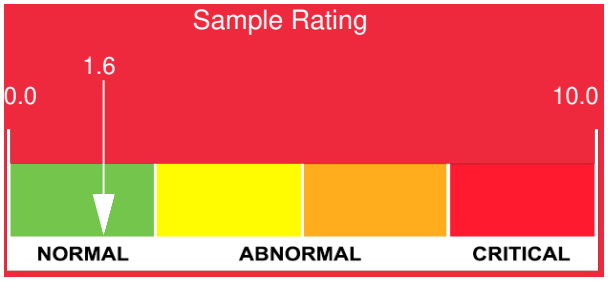
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 12/17/12 | 04/19/13 | 4.0y | SUPPLY LINE TO AR TK | 473 / 245 | 22.3 | 39.6 | 0.11 | 4.04 | 708 / 376 | 809 / 431 | 903 / 484 | 1.34 |
| 07/31/09 | 07/31/09 | | | 426 / 219 | 63 | 36.9 | 0.23 | 0.02 | 684 / 362 | | 898 / 481 | 3.2 |
| Baseline Data | | | | 433 / 223 | | 34.2 | 0.03 | | 707 / 375 | 799 / 426 | 887 / 475 | 2.6 |

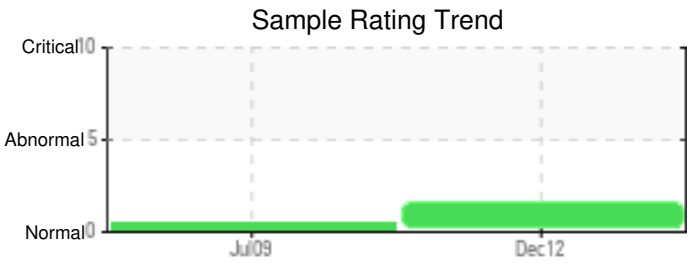





| Sample Date | Iron | Chromium | Nickel | Aluminum | Copper | Lead | Tin | Cadmium | Silver | Vanadium | Silicon | Sodium | Potassium | Titanium | Molybdenum | Antimony | Manganese | Lithium | Boron | Magnesium | Calcium | Barium | Phosphorus | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/17/12 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07/31/09 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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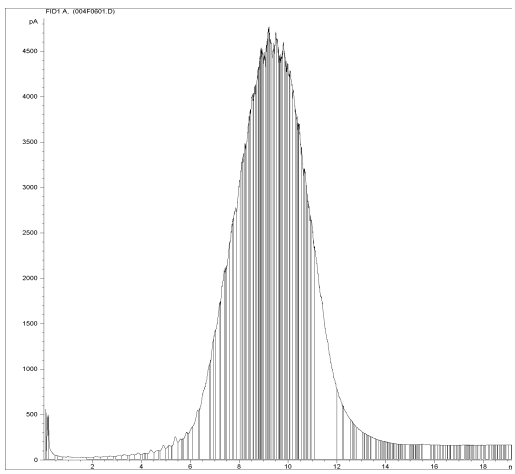
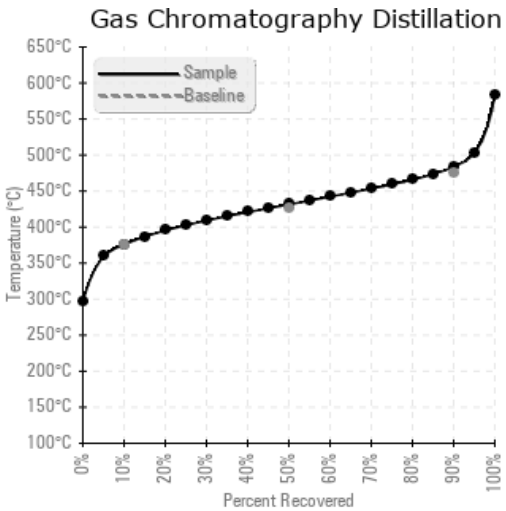
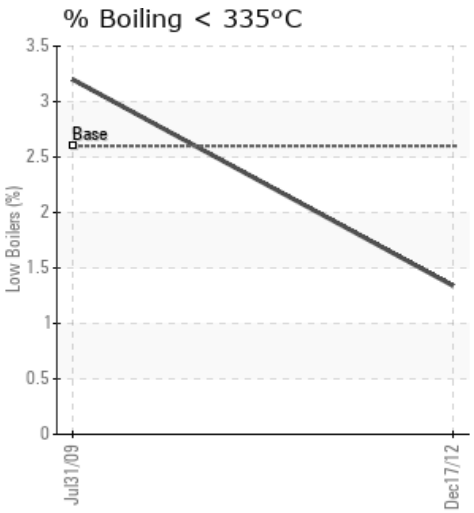
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| Baseline Data | | | 0 | 0 | | | | | | 0 | | | 0 | 0 | | | | | 0 | | | | 0 | |

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

GCD Spectrum






## Historical Comments

| | |
|---|---|
| 07/31/09 | |
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