

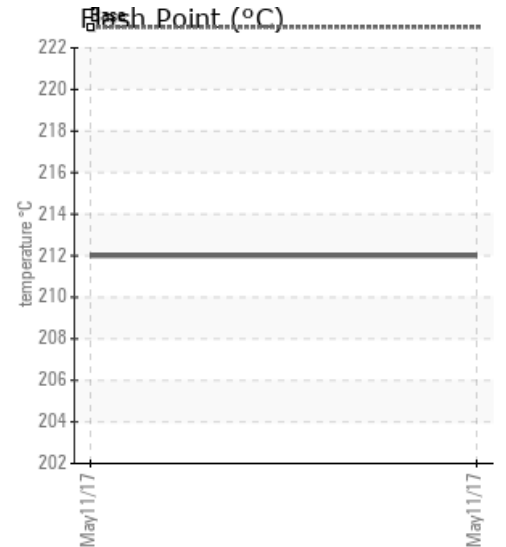
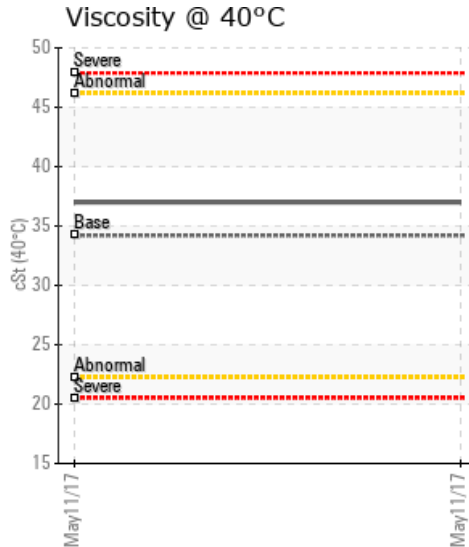
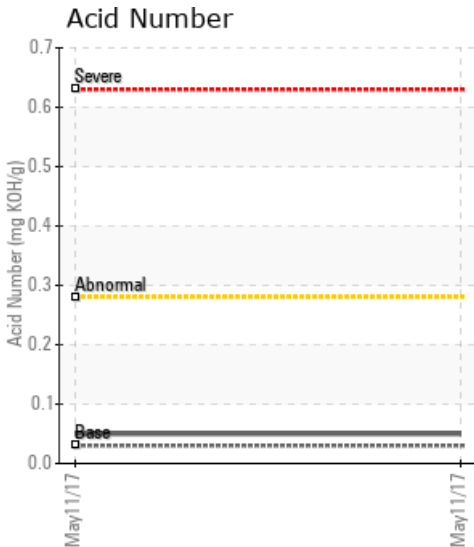
HEAT TRANSFER

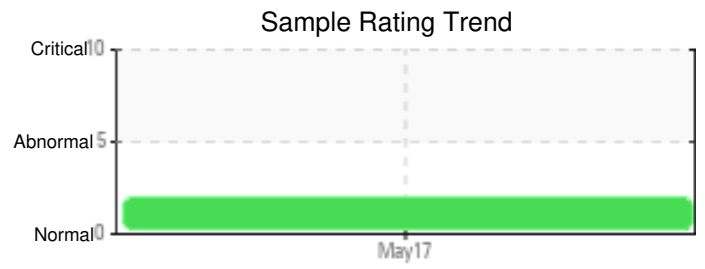
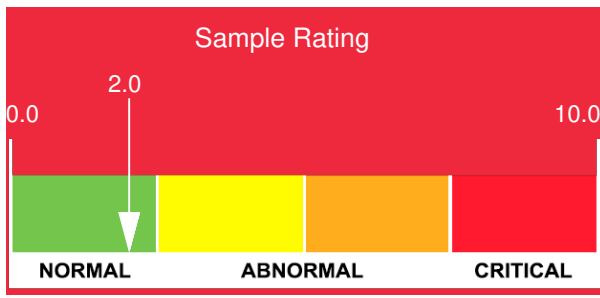
| Customer: PTRHTF30101 | System Information | Sample Information |
|---|--|---|
| Pembroke MDF Inc 777 Fibreboard Drive Pembroke, ON K8A 6W5 Canada Attn: Dan Havis Tel: (613)732-3939 E-Mail: dan.havis@pembrokemdf.com | System Volume: 100000 ltr Bulk Operating Temp: 518F / 270C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: | Lab No: 02145549 Analyst: Pierre Castagne Sample Date: 05/11/17 Received Date: 05/15/17 Completed: 05/25/17 To discuss this report contact Pierre Castagne at 450-981-0693 |

Recommendation: GCD @ 90% are very high, this impacts the viscosity and carbon deposits

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

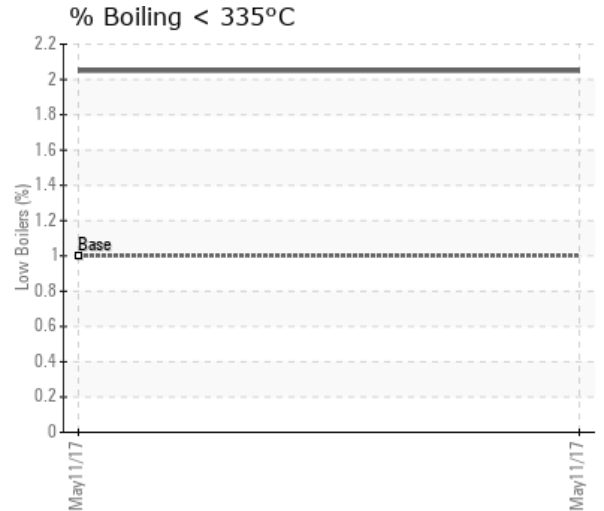
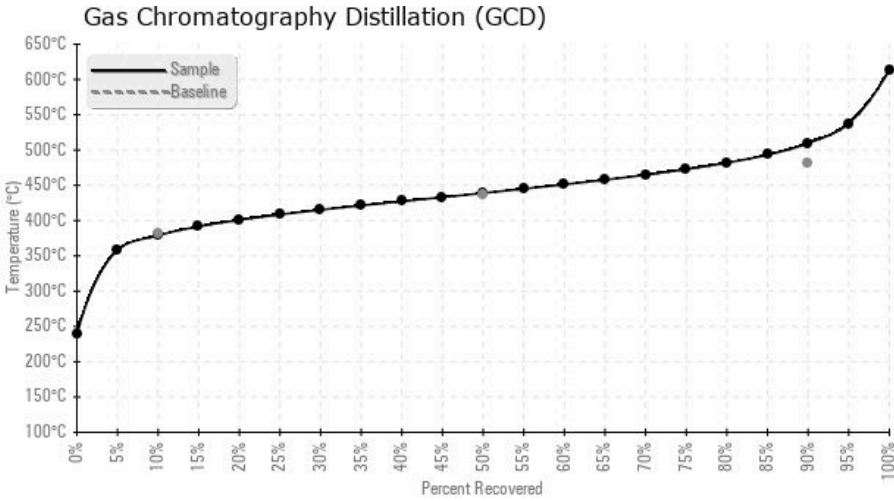
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 05/11/17 | 05/15/17 | 0y | | 414 / 212 | 34.9 | 37.0 | 0.05 | 0.083 | 714 / 379 | 822 / 439 | 949 / 510 | 2.05 |
| 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 | |
|----------------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|---|
| 05/11/17 | 28 | 0 | 0 | 0 | 0 | 0 | 1 | 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

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