

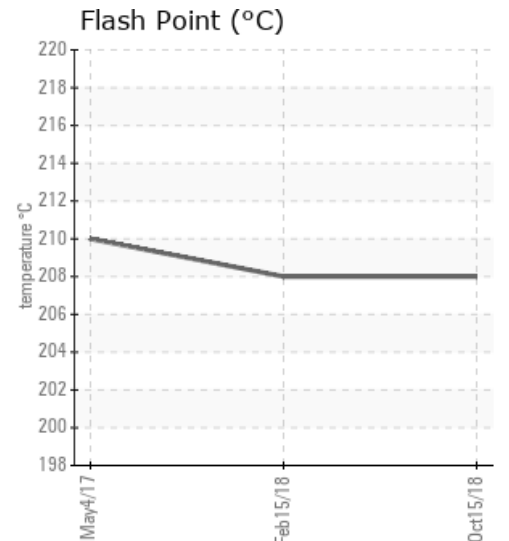
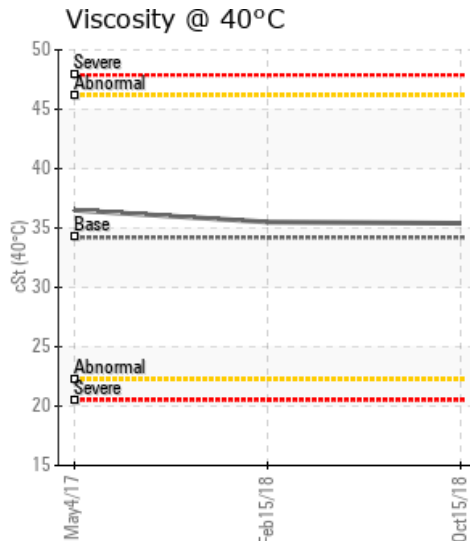
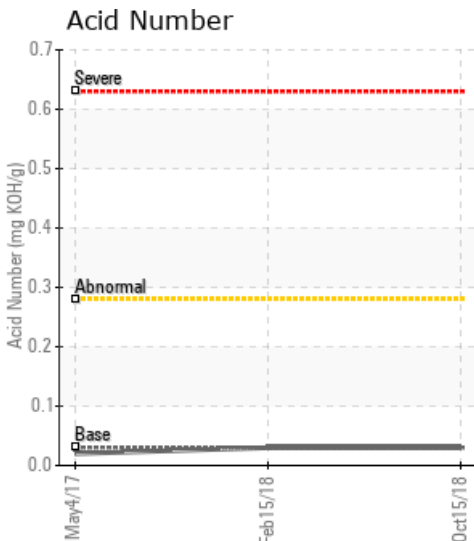
VAPOR POWER

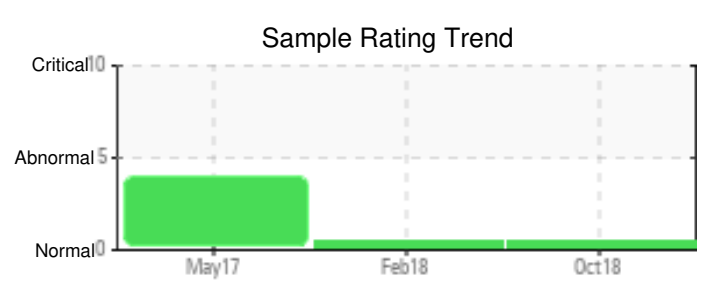
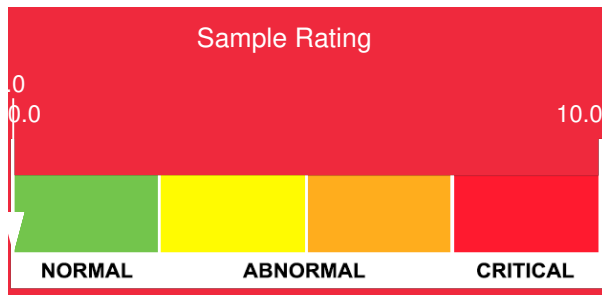
| Customer: PTRHTF30020 | System Information | Sample Information |
|--|---|---|
| IKO INDUSTRIES HAWKESBURY 1451 SPENCE ROAD HI-PARTS-HAWK YARD HAWKESBURY, ON K6A 3T4 Canada Attn: Roy Paquette Tel: (613)632-8581 E-Mail: roy.paquette@iko.com | System Volume: 600 gal Bulk Operating Temp: 500F / 260C Heating Source: Blanket: Fluid: PETRO CANADA PETRO-THERM Make: VAPOR POWER | Lab No: 02245906 Analyst: Pierre Castagne Sample Date: 10/15/18 Received Date: 10/18/18 Completed: 10/22/18 To discuss this report contact Pierre Castagne at 905-285-8278 |

Recommendation: Le fluide caloporteur est normal

Comments:

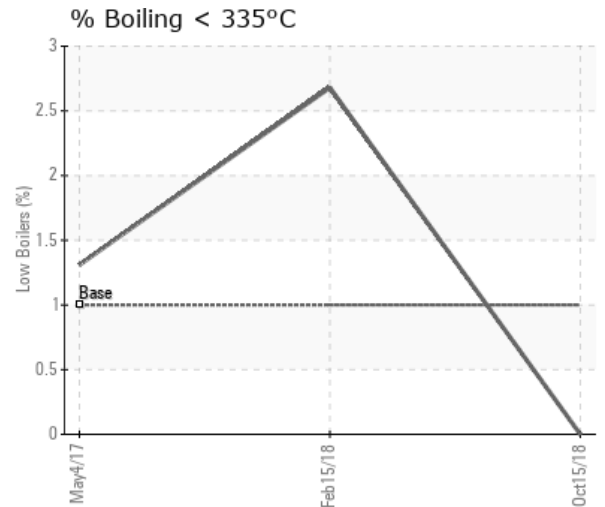
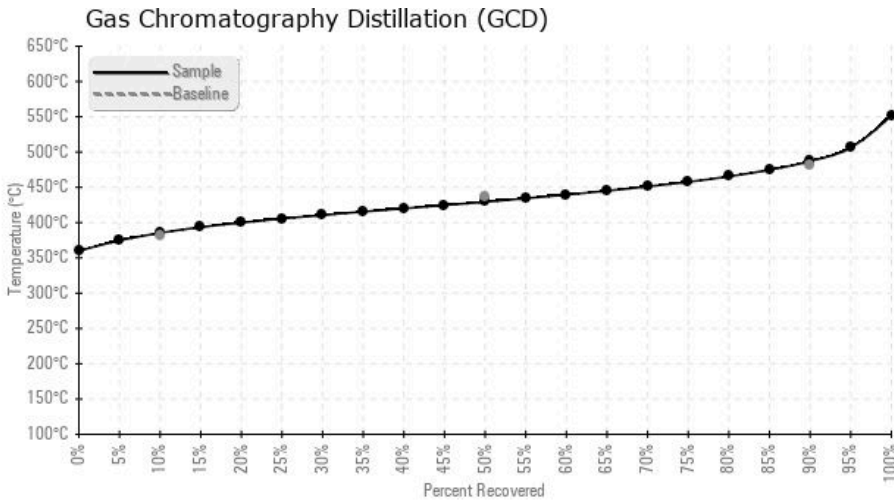
| Sample Date | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10% | GCD 50% | GCD 90% | GCD % < 335°C |
|---------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
| | mm/dd/yy | | | °F/°C | ppm | cSt | mg/KOH/g | %wt | °F/°C | °F/°C | °F/°C | % |
| 10/15/18 | 10/18/18 | 3y | | 406 / 208 | 16.2 | 35.4 | 0.03 | 0.040 | 726 / 385 | 805 / 429 | 909 / 487 | 0.00 |
| 02/15/18 | 02/22/18 | 243y | | 406 / 208 | 5.3 | 35.5 | 0.03 | 0.038 | 705 / 374 | 809 / 432 | 917 / 492 | 2.68 |
| 05/04/17 | 05/11/17 | 1y | HOT OIL BOILER | 410 / 210 | 18.9 | 36.5 | 0.02 | 0.069 | 712 / 378 | 814 / 434 | 937 / 503 | 1.31 |
| 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 |
|----------------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 10/15/18 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 02/15/18 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| 05/04/17 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 |
| 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 | |
|---------------------|--|
| 02/15/18 | High boilers (GCD @ 90%) increase viscosity, as a result carbon deposit settle in low flow/disturbance areas and foul heat exchange surfaces. Looking at the curve, it appears that a low viscosity oil mixture has occurred. |
| 05/04/17 | The sample has trace of Vanadium, the Low boilers GCD @10% are within specification (this could be the result of topping-up the oil) although the flash point is lower than the Petro-Therm oil specification (210°C versus 225°C specification),this suggests some oil craking is taking place. The High boilers GCD @ 90% are higher than the specification; this normally causes the viscosity of the oil to increase and carbon deposits. (GCD) 90% Distillation Point is severely high. |

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