

1X43-CH-01

Customer: PTRHTF30038
 BUILDING PRODUCTS OF CANADA
 9510 ST PATRICK STREET
 LASALLE, QC H8R 1R9 CANADA
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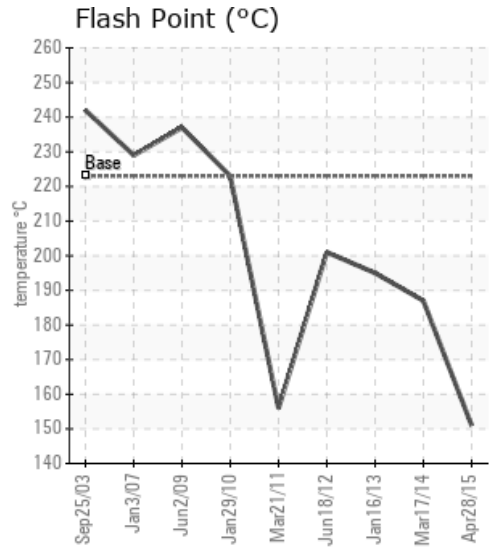
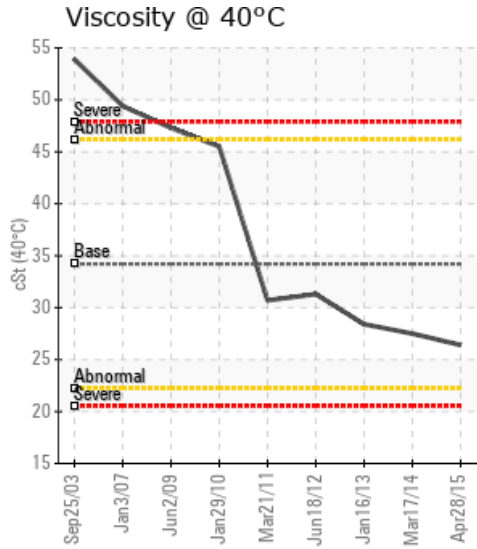
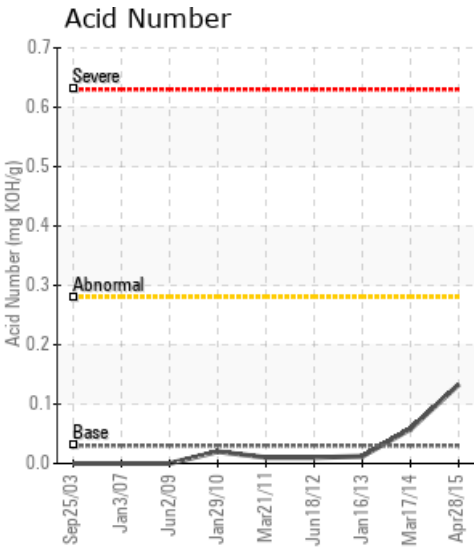
System Information
 System Volume: 2430 ltr
 Bulk Operating Temp: 302F / 150C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA PETRO-THERM
 Make: FULTON

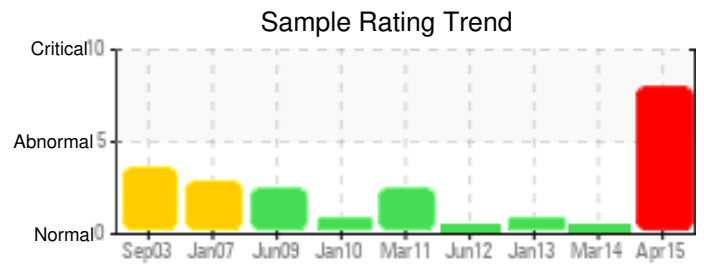
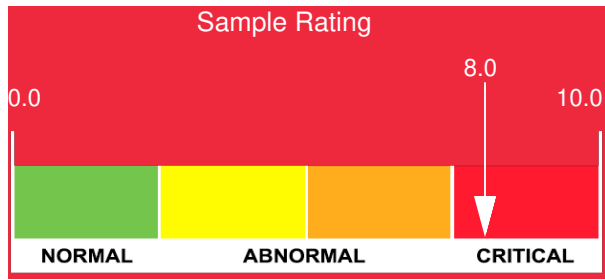
Sample Information
 Lab No: 01992505
 Analyst: Pierre Castagne
 Sample Date: 04/28/15
 Received Date: 05/01/15
 Completed: 05/11/15
 Pierre Castagne
 pierre.castagne@petrocanadalsp.com

Recommendation: Le point éclair est très bas, les fractions légères sont très bases (GCD 10%) le % de fractions à < 335C est élevé, les fractions lourdes sont élevés ainsi que la Viscosité à 40C est sous la limite des +/- 10% d'écart. NOus vous suggérons de ventiller pour éliminer les fractions légères, nous vous suggérons un ajout de fluide thermique de 20% du réservoir afin de changer les paramètres identifiés ci-haut.

Comments: COC Flash Point is severely low. (GCD) 10% Distillation Point is abnormally low. (GCD) % < 335°C is marginally high. (GCD) 90% Distillation Point 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 | % |
| 04/28/15 | 05/01/15 | 1y | VALVE SUR TUYAN ENT | 304 / 151 | 5.5 | 26.4 | 0.133 | 0.092 | 630 / 332 | 792 / 422 | 925 / 496 | 9.92 |
| 03/17/14 | 03/21/14 | 1y | | 369 / 187 | 16.1 | 27.5 | 0.058 | 0.179 | 624 / 329 | 800 / 426 | 952 / 511 | 10.40 |
| 01/16/13 | 01/30/13 | 13y | SUCTION PUMP | 383 / 195 | 0.00 | 28.4 | 0.012 | 0.038 | 657 / 347 | 829 / 443 | 900 / 482 | 8.22 |
| 06/18/12 | 07/12/12 | | | 394 / 201 | 0 | 31.3 | 0.01 | 0.026 | 690 / 366 | 797 / 425 | 896 / 480 | 4.616 |
| 03/21/11 | 04/04/11 | | UNDER THE RESERVOIR | 313 / 156 | 13 | 30.7 | 0.01 | 0.004 | 681 / 360 | 814 / 435 | 921 / 494 | 6.716 |
| Baseline Data | | | | 433 / 223 | | 34.2 | 0.03 | | 720 / 382 | 817 / 436 | 900 / 482 | 1.00 |

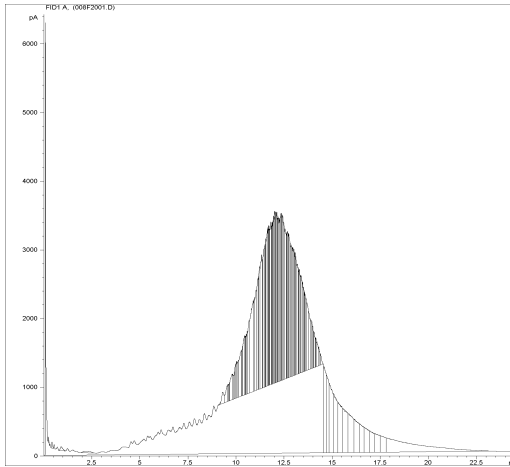




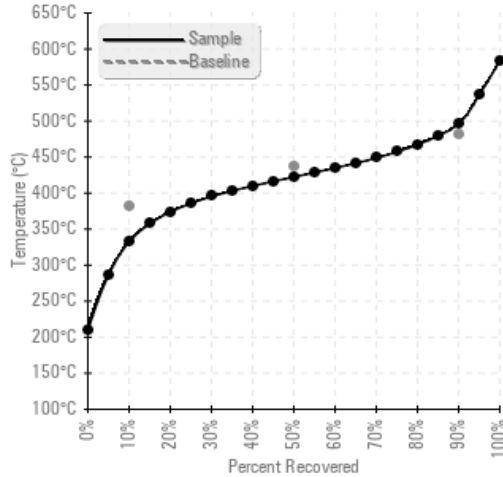
| Sample Date | Iron | Chromium | Nickel | Aluminum | Copper | Lead | Tin | Cadmium | Silver | Vanadium | Silicon | Sodium | Potassium | Titanium | Molybdenum | Antimony | Manganese | Lithium | Boron | Magnesium | Calcium | Barium | Phosphorus | Zinc |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 04/28/15 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 03/17/14 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 01/16/13 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 06/18/12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 |
| 03/21/11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| Baseline Data | | | 0 | 0 | | | | | | 0 | | | 0 | 0 | | | | | 0 | | | | 0 | |

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

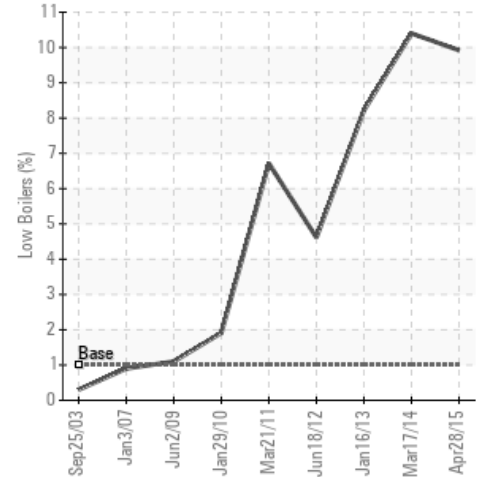
GCD Spectrum



Gas Chromatography Distillation



% Boiling < 335°C



Historical Comments

| | |
|----------|--|
| 03/17/14 | Il faudra garder un oeil sur la condition de cette huile. Il y a des indications de détérioration avec la présence de fractions légères (GCD%<335C à 10.4%) et la distillation 10% plus bas que normal, ainsi que la distillation de fractions lourdes (90%) plus haut que normal. Le point d'éclair est aussi légèrement plus bas que normal. Il faudra rééchantillonner dans 3-6 mois. (GCD) 90% Distillation Point is severely high. (GCD) 10% Distillation Point is severely low. (GCD) % < 335°C is marginally high. COC Flash Point is marginally low. |
| 01/16/13 | Les resultats sont normaux et aucune degradation n'est observee selon les resultats, malgre l'apparence noire de l'huile. Continuez l'échantillonnage regulierement. |
| 06/18/12 | Les proprietes de l'huile semblent normales. Le point d'éclair est semblable a l'huile neuve, viscosite est normale, le nombre d'acidite est tres bas. SVP continuez a échantillonner les systems regulierement. |
| 03/21/11 | |

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