

# ROSEBURG PEMBROKE

**Customer: PTRHTF30101**  
 Roseburg Pembroke MDF Inc.  
 777 Fibreboard Drive  
 Pembroke, ON K8A 6W5 Canada  
 Attn: Dan Havis  
 Tel: (613)732-3939  
 E-Mail: danielh@rfpco.com

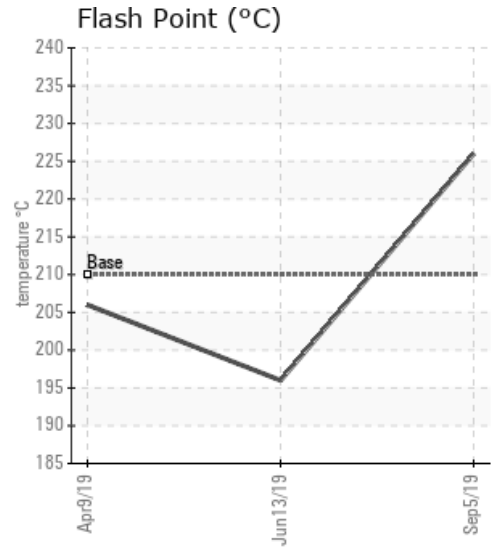
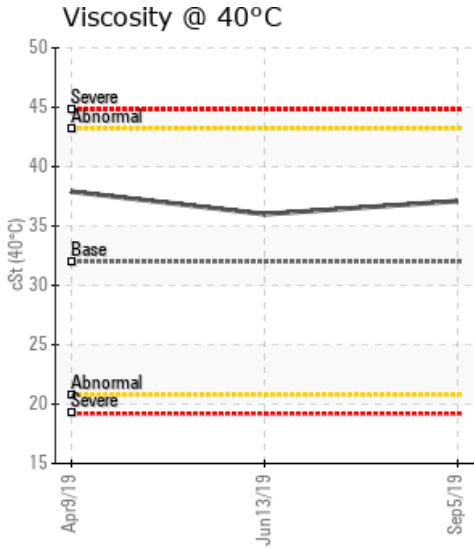
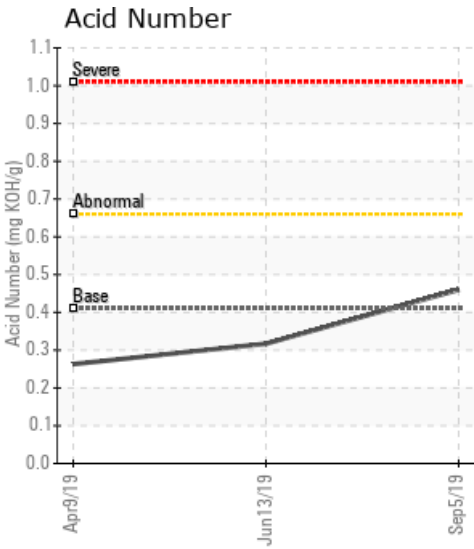
**System Information**  
 System Volume: 100000 gal  
 Bulk Operating Temp: 518F / 270C  
 Heating Source:  
 Blanket:  
 Fluid: HEAT TRANSFER FLUID ISO 32  
 Make:

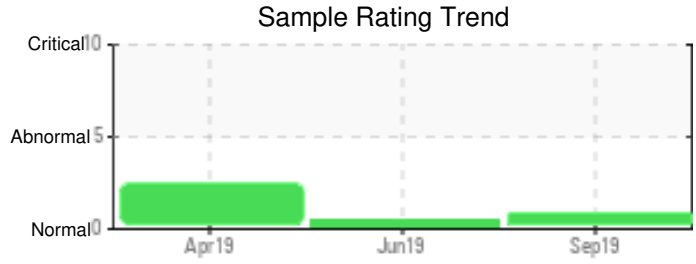
**Sample Information**  
 Lab No: 02306971  
 Analyst: Pierre Castagne  
 Sample Date: 09/05/19  
 Received Date: 09/09/19  
 Completed: 09/12/19  
 Pierre Castagne  
 pierre.castagne@petrocanadalsp.com

Recommendation: Our GCD 90% are marginally high, we have slight oxydation of the oil. The oil is Ok for continuous use.

Comments: (GCD) 90% Distillation Point is marginally low.

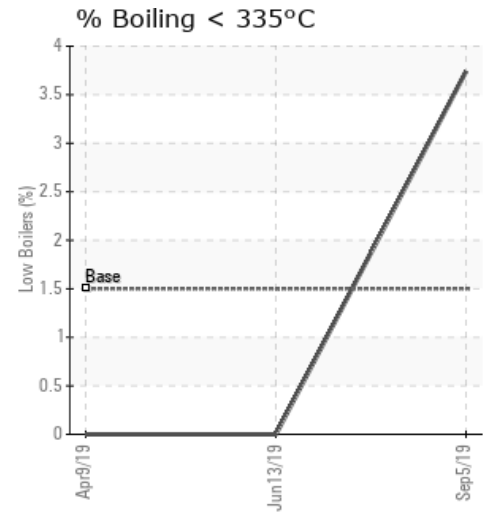
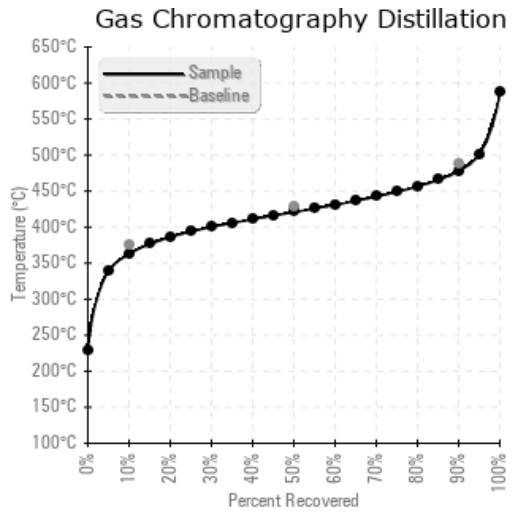
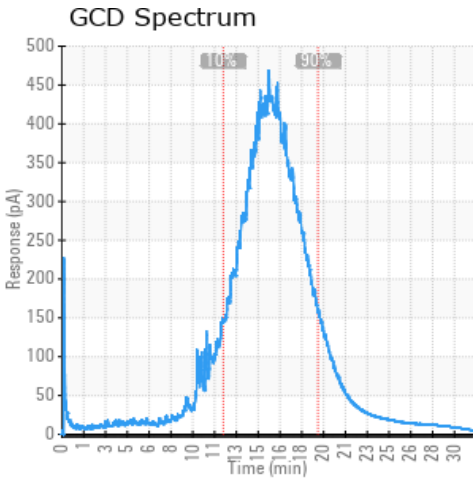
| Sample Date          | Received Date | Fluid Age | Sample Location | Flash Point (COC) | Water (KF) | Viscosity (40°C) | Acid Number | Solids | GCD 10%   | GCD 50%   | GCD 90%   | GCD % < 335°C |
|----------------------|---------------|-----------|-----------------|-------------------|------------|------------------|-------------|--------|-----------|-----------|-----------|---------------|
|                      | mm/dd/yy      |           |                 | °F/°C             | ppm        | cSt              | mg/KOH/g    | %wt    | °F/°C     | °F/°C     | °F/°C     | %             |
| 09/05/19             | 09/09/19      | 0c        |                 | 439 / 226         | 17.8       | 37.1             | 0.460       | 0.168  | 685 / 363 | 789 / 421 | 892 / 478 | 3.74          |
| 06/13/19             | 06/14/19      | 0c        | BOILER          | 385 / 196         | 138.4      | 36.0             | 0.317       | 0.059  | 723 / 384 | 815 / 435 | 928 / 498 | 0.00          |
| 04/09/19             | 04/12/19      | 0c        | HH PUMP SUSTION | 403 / 206         | 0.5        | 37.9             | 0.263       | 0.152  | 731 / 389 | 821 / 438 | 932 / 500 | 0.00          |
| <b>Baseline Data</b> |               |           |                 | 410 / 210         |            | 32               | 0.41        |        | 707 / 375 | 802 / 428 | 910 / 488 | 1.5           |





| 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 |
|---------------|------|----------|--------|----------|--------|------|-----|---------|--------|----------|---------|--------|-----------|----------|------------|----------|-----------|---------|-------|-----------|---------|--------|------------|------|
| 09/05/19      | 23   | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 9       | 0      | 0          | 4    |
| 06/13/19      | 21   | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 0       | 0      | 0          | 1    |
| 04/09/19      | 18   | 0        | 0      | 0        | 0      | 0    | 0   | 0       | 0      | 0        | 0       | 0      | 0         | 0        | 0          | 0        | 0         | 0       | 0     | 0         | 1       | 0      | 0          | 0    |
| Baseline Data |      |          | 0      | 0        |        |      |     |         |        | 0        |         |        | 0         | 0        |            |          |           |         | 5     |           |         |        | 250        |      |

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



| Historical Comments |   |
|---------------------|---|
| 06/13/19            | The oil is OK, for continuous use   |
| 04/09/19            | The Petro-Therm is good for continuous use, resample at your regular sample interval. GCD @ 10% and GCD @ 90% are marginally high, Acidity is marginally high. (GCD) 90% Distillation Point is marginally high. |
|                     |   |
|                     |   |

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