

## **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

#### Area (AY419B) Supermarket Machine Id FREIGHTLINER 107A1865 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (11 GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

#### Fluid Condition

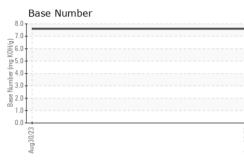
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

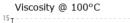
| AL)  |  |  | ,   | Aug2023  |  |   |
|--|--|--|---|--|--|---|
| SAMPLE INFORI  | MATION   | method   | limit/base  | current  | history1   | history2  |
| Sample Number  |  | Client Info  |   | PCA0104109   |  |   |
| Sample Date  |  | Client Info  |   | 30 Aug 2023  |  |   |
| Machine Age  | mls  | Client Info  |   | 35598  |  |   |
| Oil Age  | mls  | Client Info  |   | 18653  |  |   |
| Oil Changed  |  | Client Info  |   | Changed  |  |   |
| Sample Status  |  |  |   | NORMAL   |  |   |
| CONTAMINAT   | ION  | method   | limit/base  | current  | history1   | history2  |
| Fuel   |  | WC Method  | >5  | <1.0   |  |   |
| Glycol   |  | WC Method  |   | NEG  |  |   |
| WEAR METAL   | S  | method   | limit/base  | current  | history1   | history2  |
| Iron   | ppm  | ASTM D5185m  | >80   | 32   |  |   |
| Chromium   | ppm  | ASTM D5185m  | >5  | 3  |  |   |
| Nickel   | ppm  | ASTM D5185m  | >2  | <1   |  |   |
| Titanium   | ppm  | ASTM D5185m  |   | 0  |  |   |
| Silver   | ppm  | ASTM D5185m  | >3  | <1   |  |   |
| Aluminum   | ppm  | ASTM D5185m  | >30   | 58   |  |   |
| Lead   | ppm  | ASTM D5185m  | >30   | <1   |  |   |
| Copper   | ppm  | ASTM D5185m  | >150  | 232  |  |   |
| Tin  | ppm  | ASTM D5185m  | >5  | 2  |  |   |
| Vanadium   | ppm  | ASTM D5185m  |   | 0  |  |   |
| Cadmium  | ppm  | ASTM D5185m  |   | 0  |  |   |
| ADDITIVES  |  | method   | limit/base  | current  | history1   | history2  |
| Boron  | ppm  | ASTM D5185m  | 2   | 12   |  |   |
| Barium   | ppm  | ASTM D5185m  | 0   | 0  |  |   |
|  |  |  |   |  |  |   |
| Molybdenum   | ppm  | ASTM D5185m  | 50  | 62   |  |   |
| -  | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m   |   | 62<br>3  |  |   |
| Manganese  |  |  |   | -  |  |   |
| Molybdenum<br>Manganese<br>Magnesium<br>Calcium  | ppm  | ASTM D5185m  | 0   | 3  |  |   |
| Manganese<br>Magnesium   | ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m   | 0<br>950  | 3<br>891   |  |   |
| Manganese<br>Magnesium<br>Calcium  | ppm<br>ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050  | 3<br>891<br>1333   |  |   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus  | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995   | 3<br>891<br>1333<br>937  |  |   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180   | 3<br>891<br>1333<br>937<br>1213  | <br><br>   | <br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180<br>2600   | 3<br>891<br>1333<br>937<br>1213<br>2885  | <br><br>   | <br><br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>Method</b>  | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base   | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current   | <br><br><br><br>history1                                     | <br><br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base   | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5  | <br><br><br><br>history1<br>                                 | <br><br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br><b>method</b><br>ASTM D5185m<br>ASTM D5185m   | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>20  | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3   | <br><br><br><br>history1<br>                                 | <br><br><br><br>history2  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180<br>2600<br><i>limit/base</i><br>>20                                   | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3<br>125                                  | <br><br><br>history1<br>                                     | <br><br><br><br>history2<br><br>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED                                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>TS                       | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>20<br>                                      | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3<br>125<br>current                       | <br><br><br>history1<br><br><br>history1                     | <ul> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> </ul>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %                           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185m<br>ASTM D5185m                              | 0<br>950<br>1050<br>995<br>1180<br>2600<br><i>limit/base</i><br>>20<br>>20<br><i>limit/base</i><br>>3 | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3<br>125<br>current<br>0.8                | <br><br><br><br>history1<br><br><br>history1                 | <ul> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> </ul>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration              | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D7844<br>*ASTM D7624                | 0<br>950<br>1050<br>995<br>1180<br>2600<br>limit/base<br>>20<br>limit/base<br>>3<br>>20               | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3<br>125<br>current<br>0.8<br>8.7         | <br><br><br><br>history1<br><br><br>history1<br><br>history1 | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li>history2</li> <li></li> <li>history2</li> </ul>  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>CONTAMINAN<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration<br>Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D7844<br>*ASTM D7624<br>*ASTM D7624<br>*ASTM D7415 | 0<br>950<br>1050<br>995<br>1180<br>2600<br>imit/base<br>>20<br>imit/base<br>>3<br>>20<br>>3<br>>20    | 3<br>891<br>1333<br>937<br>1213<br>2885<br>current<br>5<br>3<br>125<br>current<br>0.8<br>8.7<br>21.0 | <br><br><br><br>history1<br><br><br>history1<br><br>         | <ul> <li></li> <li></li> <li></li> <li></li> <li>history2</li> <li></li> <li></li> <li>history2</li> <li></li> <li></li></ul> |



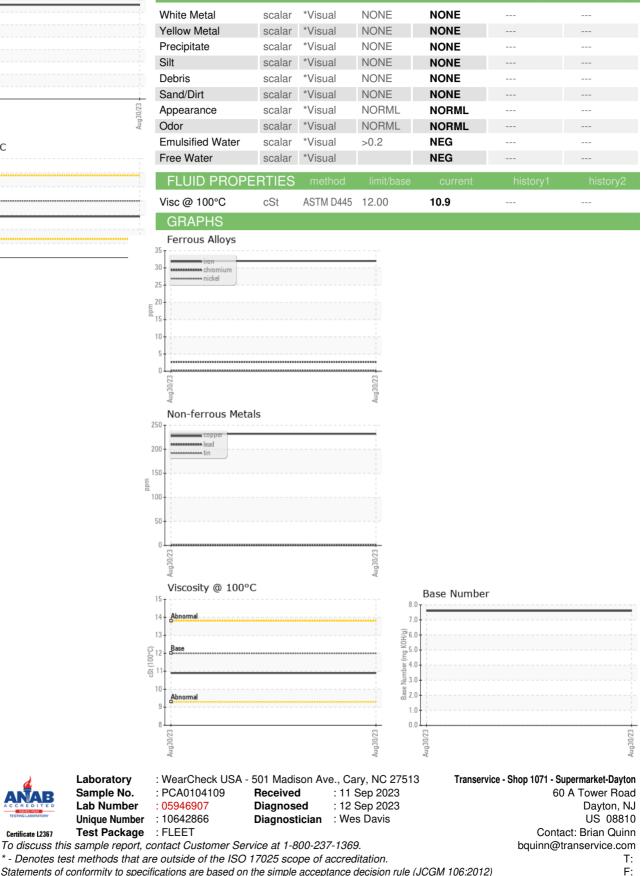
# **OIL ANALYSIS REPORT**

VISUAL









Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367