



|                 |                 |
|-----------------|-----------------|
| WEAR            | <b>NORMAL</b>   |
| CONTAMINATION   | <b>NORMAL</b>   |
| FLUID CONDITION | <b>ABNORMAL</b> |



Machine Id  
**427010**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**RECOMMENDATION**

No corrective action is recommended at this time. Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>GFL0113239</b>  | GFL0082573  | GFL0078523  |
| Sample Date    |     | Client Info |           | <b>25 Apr 2024</b> | 06 Jun 2023 | 20 Apr 2023 |
| Machine Age    | kms | Client Info |           | <b>0</b>           | 815101      | 30755       |
| Oil Age        | kms | Client Info |           | <b>32712</b>       | 0           | 0           |
| Filter Age     | kms | Client Info |           | <b>0</b>           | 0           | 0           |
| Oil Changed    |     | Client Info |           | <b>N/A</b>         | N/A         | Changed     |
| Filter Changed |     | Client Info |           | <b>N/A</b>         | N/A         | Changed     |
| Sample Status  |     |             |           | <b>ABNORMAL</b>    | NORMAL      | ABNORMAL    |

**WEAR**

All component wear rates are normal.

|          |     |               |      |              |    |    |
|----------|-----|---------------|------|--------------|----|----|
| Iron     | ppm | ASTM D5185(m) | >80  | <b>6</b>     | 21 | 3  |
| Chromium | ppm | ASTM D5185(m) | >5   | <b>0</b>     | <1 | 0  |
| Nickel   | ppm | ASTM D5185(m) | >2   | <b>0</b>     | 0  | <1 |
| Titanium | ppm | ASTM D5185(m) |      | <b>0</b>     | <1 | <1 |
| Silver   | ppm | ASTM D5185(m) | >3   | <b>0</b>     | 0  | 0  |
| Aluminum | ppm | ASTM D5185(m) | >30  | <b>2</b>     | 2  | 1  |
| Lead     | ppm | ASTM D5185(m) | >30  | <b>0</b>     | 2  | <1 |
| Copper   | ppm | ASTM D5185(m) | >150 | <b>&lt;1</b> | 2  | <1 |
| Tin      | ppm | ASTM D5185(m) | >5   | <b>0</b>     | <1 | 0  |
| Vanadium | ppm | ASTM D5185(m) |      | <b>0</b>     | 0  | 0  |

**CONTAMINATION**

Light fuel dilution occurring. No other contaminants were detected in the oil.

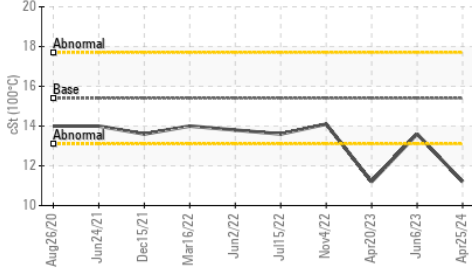
|                  |          |               |      |              |      |      |
|------------------|----------|---------------|------|--------------|------|------|
| Silicon          | ppm      | ASTM D5185(m) | >20  | <b>2</b>     | 3    | 4    |
| Potassium        | ppm      | ASTM D5185(m) | >20  | <b>&lt;1</b> | 1    | <1   |
| Fuel             | %        | ASTM D7593*   | >5   | <b>1.7</b>   | <1.0 | 1.5  |
| Water            |          | WC Method     | >0.2 | <b>NEG</b>   | NEG  | NEG  |
| Glycol           |          | WC Method     |      | <b>NEG</b>   | NEG  | NEG  |
| Soot %           | %        | ASTM D7844*   | >3   | <b>0.3</b>   | 0.8  | 0    |
| Nitration        | Abs/cm   | ASTM D7624*   | >20  | <b>6.5</b>   | 7.9  | 6.7  |
| Sulfation        | Abs/.1mm | ASTM D7415*   | >30  | <b>22.3</b>  | 20.0 | 21.0 |
| Emulsified Water | scalar   | Visual*       | >0.2 | <b>NEG</b>   | NEG  | NEG  |

**FLUID CONDITION**

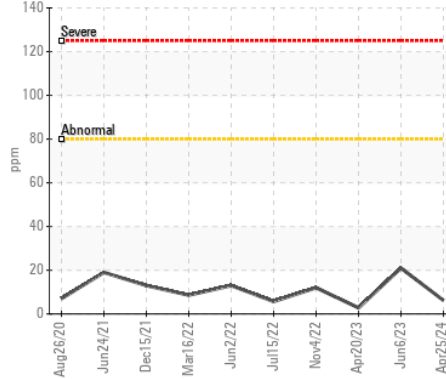
Viscosity of sample indicates oil is within SAE 30 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

|              |          |               |      |               |      |        |
|--------------|----------|---------------|------|---------------|------|--------|
| Sodium       | ppm      | ASTM D5185(m) |      | <b>2</b>      | 2    | 2      |
| Boron        | ppm      | ASTM D5185(m) | 0    | <b>43</b>     | 4    | 50     |
| Barium       | ppm      | ASTM D5185(m) | 0    | <b>0</b>      | 0    | 0      |
| Molybdenum   | ppm      | ASTM D5185(m) | 60   | <b>39</b>     | 60   | 42     |
| Manganese    | ppm      | ASTM D5185(m) | 0    | <b>0</b>      | <1   | <1     |
| Magnesium    | ppm      | ASTM D5185(m) | 1010 | <b>473</b>    | 964  | 534    |
| Calcium      | ppm      | ASTM D5185(m) | 1070 | <b>1661</b>   | 1147 | 1722   |
| Phosphorus   | ppm      | ASTM D5185(m) | 1150 | <b>739</b>    | 1093 | 859    |
| Zinc         | ppm      | ASTM D5185(m) | 1270 | <b>859</b>    | 1217 | 908    |
| Sulfur       | ppm      | ASTM D5185(m) | 2060 | <b>2057</b>   | 2507 | 2406   |
| Oxidation    | Abs/.1mm | ASTM D7414*   | >25  | <b>19.2</b>   | 14.3 | 19.2   |
| Visc @ 100°C | cSt      | ASTM D7279(m) | 15.4 | <b>▲ 11.2</b> | 13.6 | ▲ 11.2 |

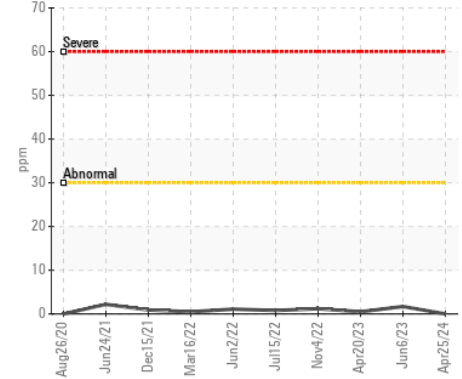
▲ Viscosity @ 100°C



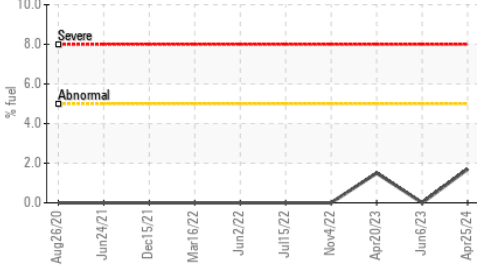
Iron (ppm)



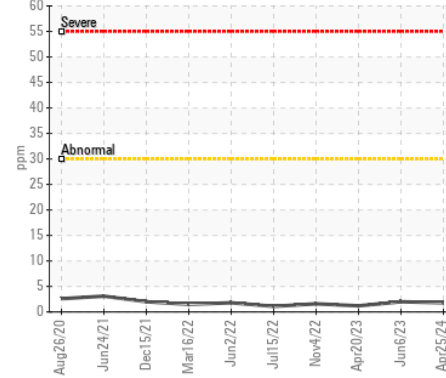
Lead (ppm)



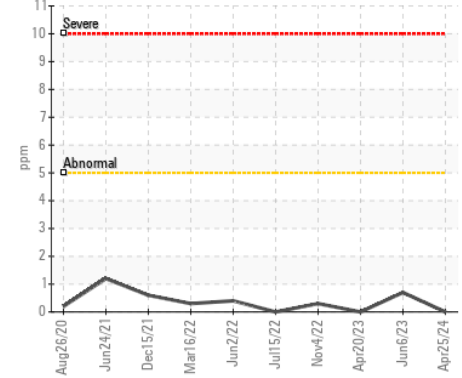
Fuel Dilution



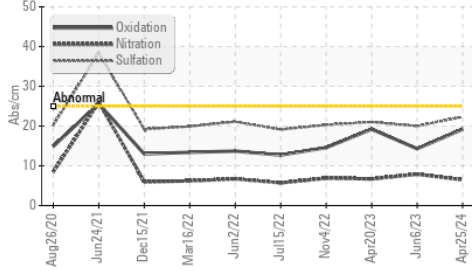
Aluminum (ppm)



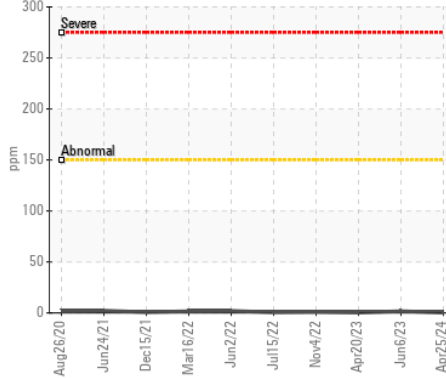
Chromium (ppm)



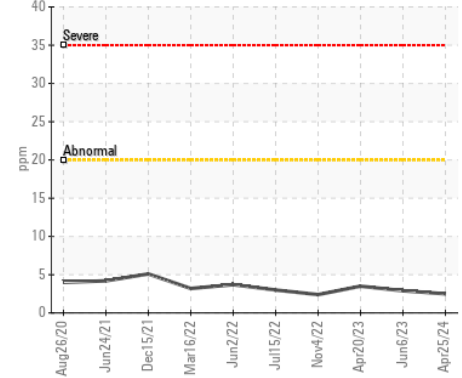
FT-IR (Direct Trend)



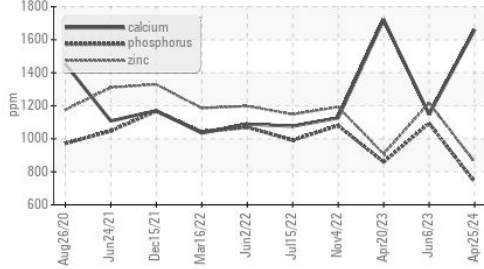
Copper (ppm)



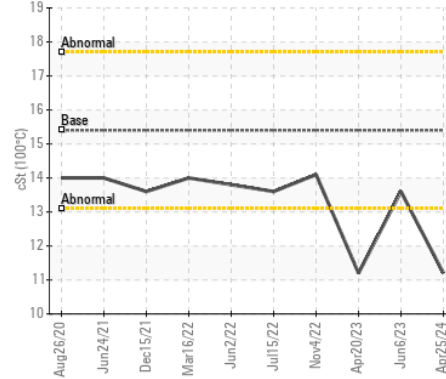
Silicon (ppm)



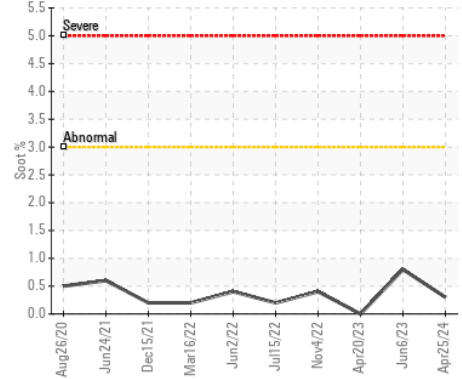
Additives



▲ Viscosity @ 100°C



Soot %



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : GFL0113239 **Received** : 26 Apr 2024  
**Lab Number** : 02631515 **Tested** : 29 Apr 2024  
**Unique Number** : 5772668 **Diagnosed** : 29 Apr 2024 - Kevin Marson  
**Test Package** : MOB 1 ( Additional Tests: FuelDilution, PercentFuel )

**GFL Environmental - 246 - Windsor**  
 2700 Deziel Dr  
 Windsor, ON  
 CA N8W 5H8  
 Contact: Dave Varga  
 dvarga@gflenv.com  
 T: (519)944-8009  
 F:

To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.