



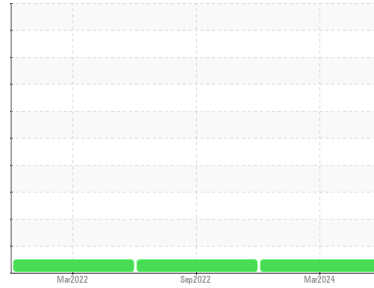
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Machine Id  
**4574M**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (36 QTS)**



## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

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.

## SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1    | history2    |
|---------------|-------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info |             | <b>GFL0104241</b>  | GFL0052107  | GFL0018425  |
| Sample Date   | Client Info |             | <b>07 Mar 2024</b> | 21 Sep 2022 | 10 Mar 2022 |
| Machine Age   | hrs         | Client Info | <b>20785</b>       | 19290       | 18112       |
| Oil Age       | hrs         | Client Info | <b>300</b>         | 19290       | 0           |
| Oil Changed   | Client Info |             | <b>Changed</b>     | Changed     | N/A         |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >3.0       | <b>&lt;1.0</b> | <1.0     | <1.0     |
| Water  | WC Method | >0.2       | <b>NEG</b>     | NEG      | NEG      |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >90  | <b>11</b>    | 30       | 29       |
| Chromium | ppm    | ASTM D5185m >20  | <b>0</b>     | 1        | 1        |
| Nickel   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Titanium | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Silver   | ppm    | ASTM D5185m >2   | <b>0</b>     | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >20  | <b>&lt;1</b> | 8        | 2        |
| Lead     | ppm    | ASTM D5185m >40  | <b>0</b>     | <1       | <1       |
| Copper   | ppm    | ASTM D5185m >330 | <b>0</b>     | <1       | <1       |
| Tin      | ppm    | ASTM D5185m >15  | <b>0</b>     | <1       | <1       |
| Vanadium | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current     | history1 | history2 |
|------------|--------|------------------|-------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>0</b>    | 2        | 4        |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>    | 2        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>57</b>   | 66       | 59       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>0</b>    | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>889</b>  | 957      | 940      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>961</b>  | 1124     | 1075     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>815</b>  | 1073     | 1022     |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1098</b> | 1288     | 1271     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>2566</b> | 3638     | 2427     |

## CONTAMINANTS

|           | method | limit/base      | current   | history1 | history2 |
|-----------|--------|-----------------|-----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>3</b>  | 4        | 4        |
| Sodium    | ppm    | ASTM D5185m     | <b>13</b> | 7        | 5        |
| Potassium | ppm    | ASTM D5185m >20 | <b>0</b>  | 11       | 2        |

## INFRA-RED

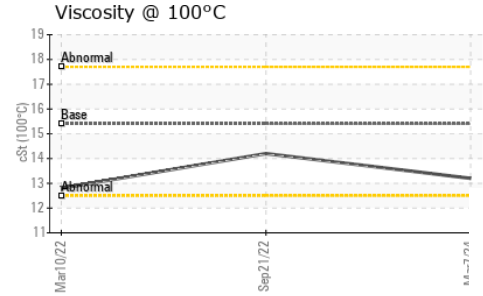
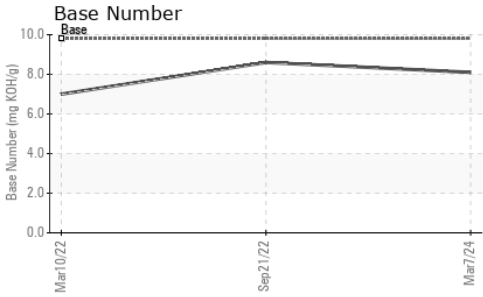
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >6  | <b>0.3</b>  | 0.7      | 0.6      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>8.0</b>  | 11.1     | 11.3     |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>19.1</b> | 22.1     | 23.5     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>15.7</b> | 19.4     | 22.4     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>8.1</b>  | 8.6      | 7        |



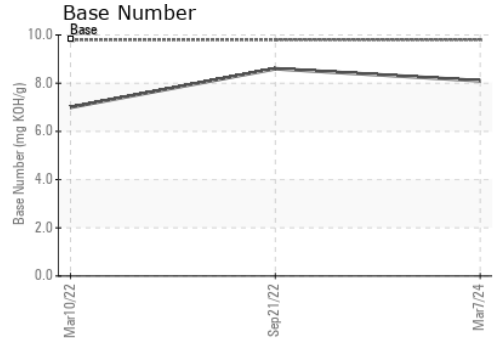
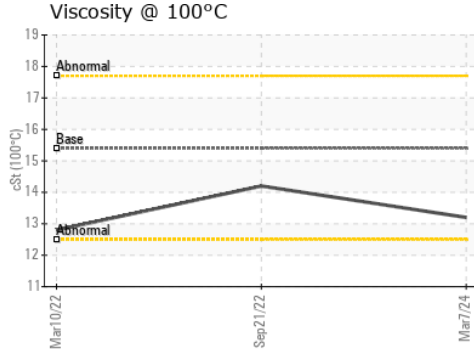
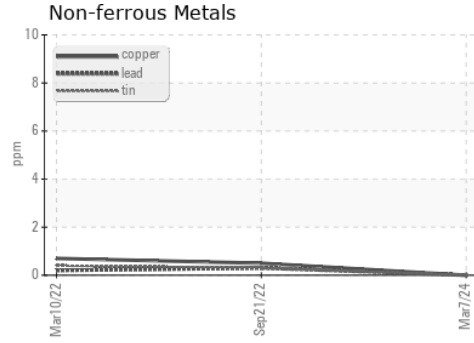
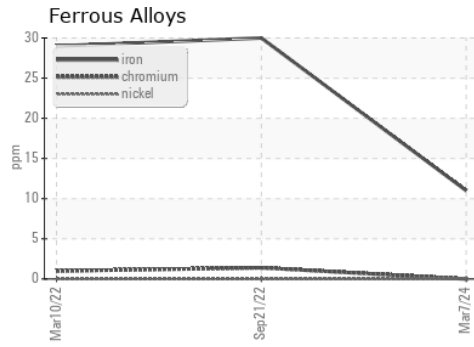
# OIL ANALYSIS REPORT



| VISUAL           | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | NONE     |
| Precipitate      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Silt             | scalar | *Visual    | NONE    | NONE     | NONE     |
| Debris           | scalar | *Visual    | NONE    | NONE     | NONE     |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE     | NONE     |
| Appearance       | scalar | *Visual    | NORML   | NORML    | NORML    |
| Odor             | scalar | *Visual    | NORML   | NORML    | NORML    |
| Emulsified Water | scalar | *Visual    | >0.2    | NEG      | NEG      |
| Free Water       | scalar | *Visual    |         | NEG      | NEG      |

| FLUID PROPERTIES | method | limit/base | current | history1    | history2 |      |
|------------------|--------|------------|---------|-------------|----------|------|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.4    | <b>13.2</b> | 14.2     | 12.8 |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0104241 **Received** : 11 Mar 2024  
**Lab Number** : **06113871** **Tested** : 11 Mar 2024  
**Unique Number** : 10922704 **Diagnosed** : 11 Mar 2024 - Wes Davis  
**Test Package** : FLEET

**GFL Environmental - 410 - Michigan West**  
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 Wayne, MI  
 US 48184  
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To discuss this sample report, contact Customer Service at 1-800-237-1369.  
 \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.  
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)