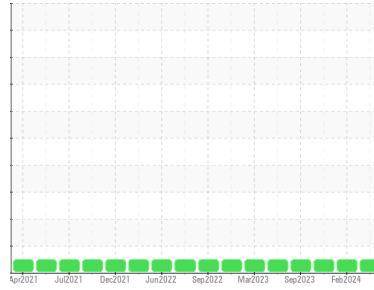




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**728056-8**  
 Component  
**Diesel Engine**  
 Fluid  
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## 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>GFL0070929</b>  | GFL0058083  | GFL0100171  |
| Sample Date   | Client Info |             | <b>28 May 2024</b> | 28 Feb 2024 | 04 Dec 2023 |
| Machine Age   | hrs         | Client Info | <b>13868</b>       | 13398       | 12821       |
| Oil Age       | hrs         | Client Info | <b>470</b>         | 577         | 565         |
| Oil Changed   | Client Info |             | <b>Not Chngd</b>   | Changed     | Changed     |
| Sample Status |             |             | <b>NORMAL</b>      | NORMAL      | NORMAL      |

## CONTAMINATION

|        | method    | limit/base | current        | history1 | history2 |
|--------|-----------|------------|----------------|----------|----------|
| Fuel   | WC Method | >5         | <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 >80  | <b>17</b>    | 25       | 25       |
| Chromium | ppm    | ASTM D5185m >5   | <b>1</b>     | 1        | <1       |
| Nickel   | ppm    | ASTM D5185m >2   | <b>0</b>     | <1       | 0        |
| Titanium | ppm    | ASTM D5185m      | <b>&lt;1</b> | <1       | <1       |
| Silver   | ppm    | ASTM D5185m >3   | <b>&lt;1</b> | 0        | 0        |
| Aluminum | ppm    | ASTM D5185m >30  | <b>4</b>     | 4        | 2        |
| Lead     | ppm    | ASTM D5185m >30  | <b>2</b>     | 0        | 0        |
| Copper   | ppm    | ASTM D5185m >150 | <b>&lt;1</b> | <1       | 1        |
| Tin      | ppm    | ASTM D5185m >5   | <b>1</b>     | <1       | 0        |
| Vanadium | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>&lt;1</b> | <1       | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 0    | <b>41</b>    | 3        | 2        |
| Barium     | ppm    | ASTM D5185m 0    | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 60   | <b>84</b>    | 62       | 63       |
| Manganese  | ppm    | ASTM D5185m 0    | <b>&lt;1</b> | <1       | 0        |
| Magnesium  | ppm    | ASTM D5185m 1010 | <b>133</b>   | 981      | 931      |
| Calcium    | ppm    | ASTM D5185m 1070 | <b>2181</b>  | 1052     | 1098     |
| Phosphorus | ppm    | ASTM D5185m 1150 | <b>1032</b>  | 1026     | 1038     |
| Zinc       | ppm    | ASTM D5185m 1270 | <b>1181</b>  | 1310     | 1234     |
| Sulfur     | ppm    | ASTM D5185m 2060 | <b>4165</b>  | 3221     | 3033     |

## CONTAMINANTS

|           | method | limit/base      | current   | history1 | history2 |
|-----------|--------|-----------------|-----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >20 | <b>11</b> | 6        | 6        |
| Sodium    | ppm    | ASTM D5185m     | <b>2</b>  | 6        | 3        |
| Potassium | ppm    | ASTM D5185m >20 | <b>2</b>  | 1        | 3        |

## INFRA-RED

|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >3  | <b>0.3</b>  | 0.7      | 0.7      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>9.5</b>  | 9.9      | 9.4      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>18.7</b> | 20.2     | 19.9     |

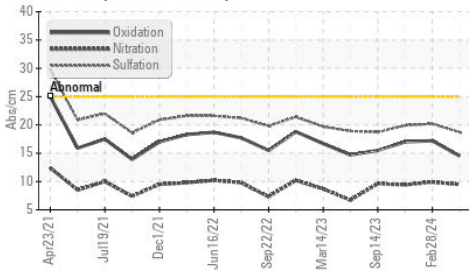
## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>14.5</b> | 17.2     | 17.0     |
| Base Number (BN) | mg KOH/g | ASTM D2896 9.8  | <b>6.6</b>  | 7.3      | 8.1      |

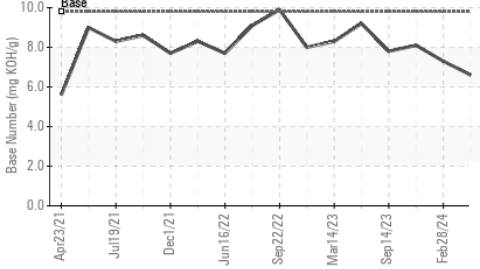


# OIL ANALYSIS REPORT

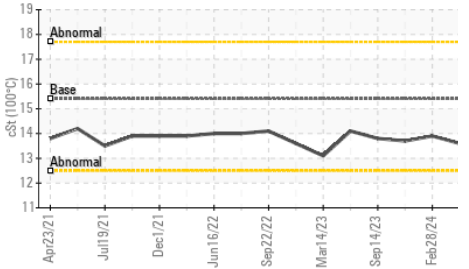
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

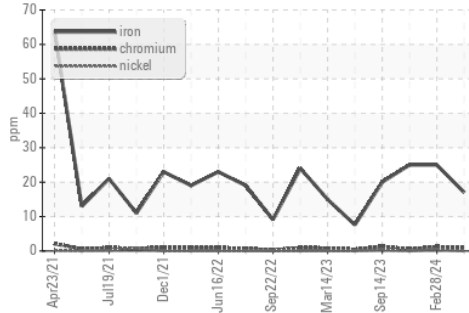


| PARAMETER        | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | NONE     |
| 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      |

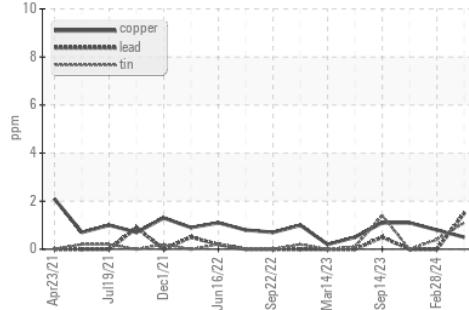
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.4    | 13.6     | 13.9     |

## GRAPHS

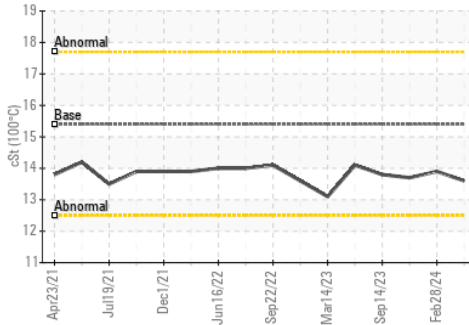
Ferrous Alloys



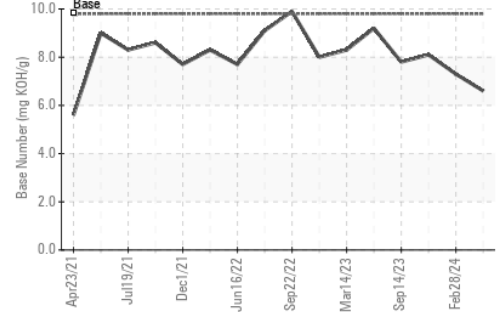
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : GFL0070929  
 Lab Number : 06194783  
 Unique Number : 11056906  
 Test Package : FLEET

Received : 29 May 2024  
 Tested : 30 May 2024  
 Diagnosed : 31 May 2024 - Sean Felton

GFL Environmental - 657 - Charlottesville Hauling  
 5498 Richmond Road  
 Troy, VA  
 US 22974  
 Contact: Brian Ulickas  
 bulickas@gflenv.com

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)

T:  
F: