



# OIL ANALYSIS REPORT

Sample Rating Trend

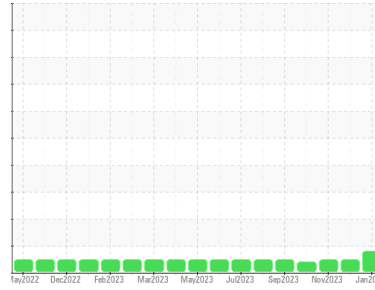
**WEAR**



Machine Id  
**731118**

Component  
**Natural Gas Engine**

Fluid  
**PETRO CANADA DURON GEO LD 15W40 (--- GAL)**



## DIAGNOSIS

### Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

### Wear

Cylinder, crank, or cam shaft wear is indicated.

### 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 acceptable for the time in service.

## SAMPLE INFORMATION

| method        | limit/base  | current            | history1    | history2    |
|---------------|-------------|--------------------|-------------|-------------|
| Sample Number | Client Info | <b>GFL0103312</b>  | GFL0103363  | GFL0099953  |
| Sample Date   | Client Info | <b>23 Jan 2024</b> | 20 Dec 2023 | 15 Nov 2023 |
| Machine Age   | hrs         | <b>6203</b>        | 6012        | 5826        |
| Oil Age       | hrs         | <b>0</b>           | 0           | 0           |
| Oil Changed   | Client Info | <b>Not Changed</b> | Not Changed | Not Changed |
| Sample Status |             | <b>ABNORMAL</b>    | NORMAL      | NORMAL      |

## CONTAMINATION

| method | limit/base     | current    | history1 | history2 |
|--------|----------------|------------|----------|----------|
| Water  | WC Method >0.1 | <b>NEG</b> | NEG      | NEG      |

## WEAR METALS

| method   | limit/base          | current     | history1 | history2 |
|----------|---------------------|-------------|----------|----------|
| Iron     | ppm ASTM D5185m >50 | <b>▲ 50</b> | 9        | 12       |
| Chromium | ppm ASTM D5185m >4  | <b>1</b>    | <1       | 1        |
| Nickel   | ppm ASTM D5185m >2  | <b>1</b>    | 0        | <1       |
| Titanium | ppm ASTM D5185m     | <b>0</b>    | 0        | 0        |
| Silver   | ppm ASTM D5185m >3  | <b>0</b>    | 0        | 0        |
| Aluminum | ppm ASTM D5185m >9  | <b>5</b>    | 2        | 3        |
| Lead     | ppm ASTM D5185m >30 | <b>2</b>    | 4        | 12       |
| Copper   | ppm ASTM D5185m >35 | <b>14</b>   | 1        | <1       |
| Tin      | ppm ASTM D5185m >4  | <b>2</b>    | <1       | 1        |
| Vanadium | ppm ASTM D5185m     | <b>0</b>    | <1       | 0        |
| Cadmium  | ppm ASTM D5185m     | <b>0</b>    | 0        | 0        |

## ADDITIVES

| method     | limit/base           | current      | history1 | history2 |
|------------|----------------------|--------------|----------|----------|
| Boron      | ppm ASTM D5185m 50   | <b>13</b>    | 17       | 12       |
| Barium     | ppm ASTM D5185m 5    | <b>&lt;1</b> | 0        | 0        |
| Molybdenum | ppm ASTM D5185m 50   | <b>47</b>    | 52       | 57       |
| Manganese  | ppm ASTM D5185m 0    | <b>11</b>    | <1       | 1        |
| Magnesium  | ppm ASTM D5185m 560  | <b>752</b>   | 545      | 624      |
| Calcium    | ppm ASTM D5185m 1510 | <b>1323</b>  | 1493     | 1698     |
| Phosphorus | ppm ASTM D5185m 780  | <b>759</b>   | 759      | 762      |
| Zinc       | ppm ASTM D5185m 870  | <b>842</b>   | 984      | 1038     |
| Sulfur     | ppm ASTM D5185m 2040 | <b>2165</b>  | 2438     | 2453     |

## CONTAMINANTS

| method    | limit/base            | current   | history1 | history2 |
|-----------|-----------------------|-----------|----------|----------|
| Silicon   | ppm ASTM D5185m >+100 | <b>29</b> | 4        | 5        |
| Sodium    | ppm ASTM D5185m       | <b>2</b>  | 2        | 8        |
| Potassium | ppm ASTM D5185m >20   | <b>3</b>  | 0        | 0        |

## INFRA-RED

| method    | limit/base               | current     | history1 | history2 |
|-----------|--------------------------|-------------|----------|----------|
| Soot %    | % *ASTM D7844            | <b>0</b>    | 0        | 0        |
| Nitration | Abs/cm *ASTM D7624 >20   | <b>11.9</b> | 10.7     | 11.8     |
| Sulfation | Abs/.1mm *ASTM D7415 >30 | <b>22.8</b> | 21.2     | 24.9     |

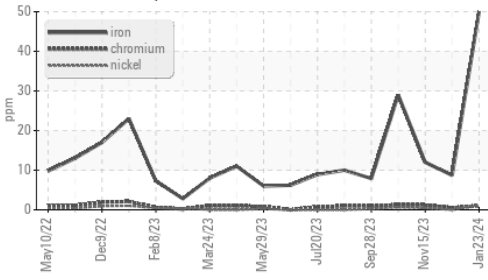
## FLUID DEGRADATION

| method           | limit/base               | current     | history1 | history2 |
|------------------|--------------------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm *ASTM D7414 >25 | <b>20.2</b> | 17.9     | 20.2     |
| Base Number (BN) | mg KOH/g ASTM D2896 10.2 | <b>4.2</b>  | 5.1      | 3.6      |

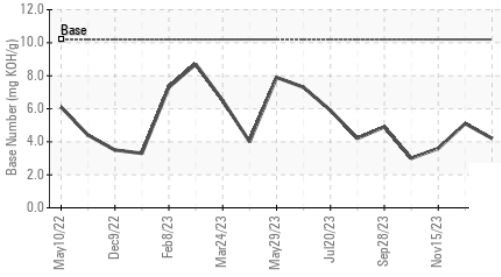


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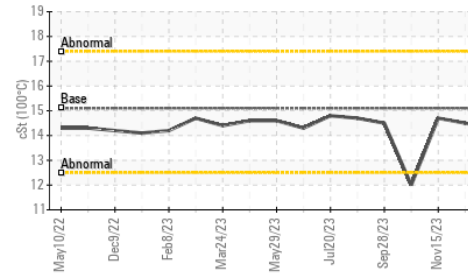
### ▲ Ferrous Alloys



### Base Number



### Viscosity @ 100°C

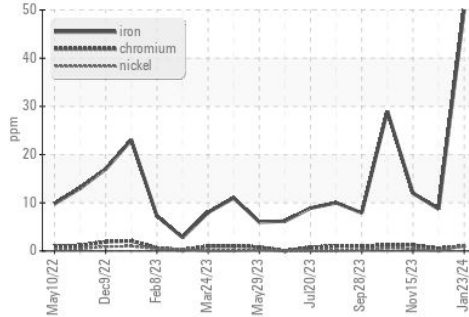


| PARAMETER        | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal      | scalar | *Visual    | NONE    | NONE     | NONE     |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | NONE     |
| 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    | >0.1    | NEG      | NEG      |
| Free Water       | scalar | *Visual    |         | NEG      | NEG      |

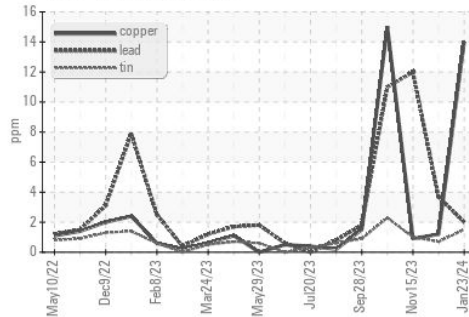
| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| Visc @ 100°C     | cSt    | ASTM D445  | 15.1    | 14.3     | 14.5     |

### GRAPHS

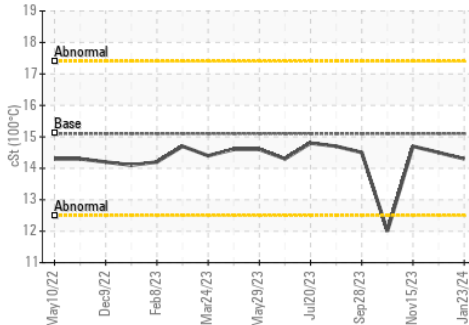
#### ▲ Ferrous Alloys



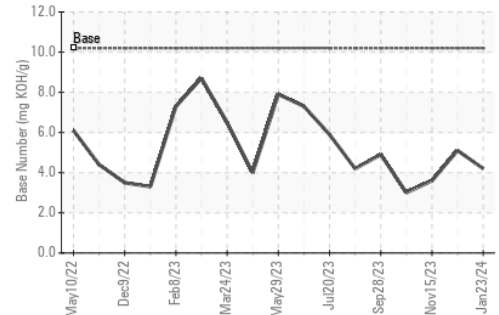
#### Non-ferrous Metals



#### Viscosity @ 100°C



#### Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : GFL0103312  
 Lab Number : 06070347  
 Unique Number : 10847024  
 Test Package : FLEET

GFL Environmental - 836 - Kansas City Hauling  
 7801 East Truman Road  
 Kansas City, MO  
 US 64126  
 Contact: Robert Hart  
 rhart@gflenv.com  
 T: (580)461-1509  
 F:

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)