



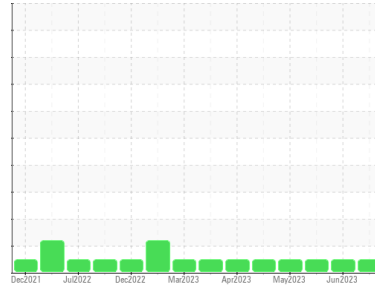
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



Area  
**166**  
Machine Id  
**424057-19**  
Component  
**Diesel Engine**  
Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)**



## 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>GFL0087851</b>  | GFL0087802  | GFL0081196  |
| Sample Date   | Client Info |             | <b>17 Aug 2023</b> | 27 Jun 2023 | 25 May 2023 |
| Machine Age   | mls         | Client Info | <b>453956</b>      | 450974      | 448643      |
| Oil Age       | mls         | Client Info | <b>600</b>         | 600         | 600         |
| Oil Changed   | Client Info |             | <b>Not Chngd</b>   | Changed     | Not Chngd   |
| 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     |
| Glycol | WC Method |            | <b>NEG</b>     | NEG      | NEG      |

## WEAR METALS

|          | method | limit/base       | current      | history1 | history2 |
|----------|--------|------------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >120 | <b>2</b>     | 4        | 3        |
| Chromium | ppm    | ASTM D5185m >20  | <b>0</b>     | <1       | <1       |
| Nickel   | ppm    | ASTM D5185m >5   | <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>1</b>     | 0        | 1        |
| Lead     | ppm    | ASTM D5185m >40  | <b>0</b>     | <1       | 0        |
| Copper   | ppm    | ASTM D5185m >330 | <b>&lt;1</b> | 2        | <1       |
| Tin      | ppm    | ASTM D5185m >15  | <b>0</b>     | <1       | <1       |
| Vanadium | ppm    | ASTM D5185m      | <b>&lt;1</b> | 0        | 0        |
| Cadmium  | ppm    | ASTM D5185m      | <b>0</b>     | 0        | 0        |

## ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 151  | <b>0</b>     | 4        | 6        |
| Barium     | ppm    | ASTM D5185m 0.4  | <b>0</b>     | 0        | 0        |
| Molybdenum | ppm    | ASTM D5185m 250  | <b>60</b>    | 59       | 58       |
| Manganese  | ppm    | ASTM D5185m      | <b>&lt;1</b> | <1       | <1       |
| Magnesium  | ppm    | ASTM D5185m 0    | <b>1017</b>  | 865      | 980      |
| Calcium    | ppm    | ASTM D5185m 2046 | <b>1063</b>  | 1018     | 1055     |
| Phosphorus | ppm    | ASTM D5185m 1043 | <b>1046</b>  | 947      | 1024     |
| Zinc       | ppm    | ASTM D5185m 943  | <b>1259</b>  | 1164     | 1278     |
| Sulfur     | ppm    | ASTM D5185m 5012 | <b>3557</b>  | 2929     | 3536     |

## CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >25 | <b>3</b> | 4        | 4        |
| Sodium    | ppm    | ASTM D5185m     | <b>3</b> | 3        | 3        |
| Potassium | ppm    | ASTM D5185m >20 | <b>0</b> | 1        | <1       |

## INFRA-RED

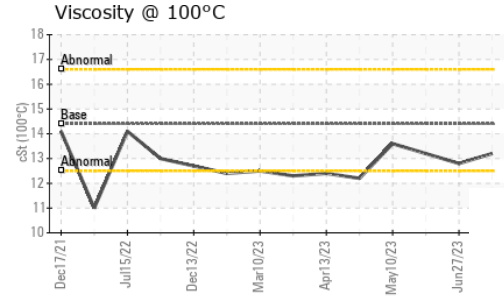
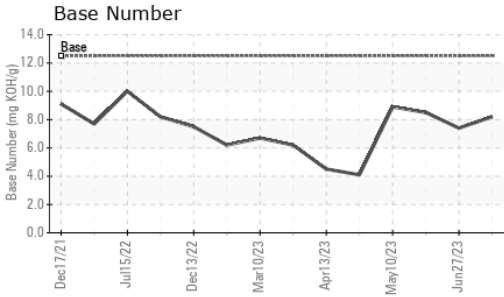
|           | method   | limit/base      | current     | history1 | history2 |
|-----------|----------|-----------------|-------------|----------|----------|
| Soot %    | %        | *ASTM D7844 >4  | <b>0.1</b>  | 0.2      | 0.1      |
| Nitration | Abs/cm   | *ASTM D7624 >20 | <b>5.8</b>  | 7.6      | 6.7      |
| Sulfation | Abs/.1mm | *ASTM D7415 >30 | <b>17.7</b> | 19.7     | 19.1     |

## FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Oxidation        | Abs/.1mm | *ASTM D7414 >25 | <b>13.7</b> | 17.0     | 15.1     |
| Base Number (BN) | mg KOH/g | ASTM D2896 12.5 | <b>8.2</b>  | 7.4      | 8.5      |



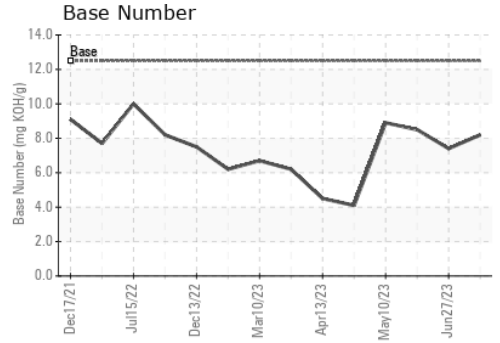
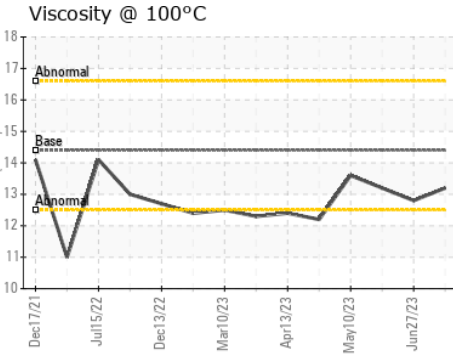
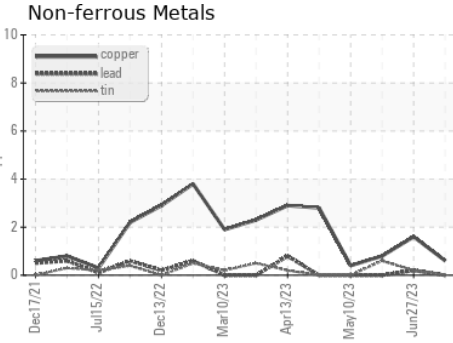
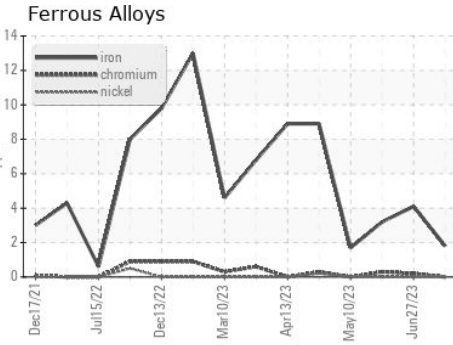
# OIL ANALYSIS REPORT



| 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  | 14.4    | <b>13.2</b> | 12.8     | 13.2 |

## GRAPHS



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0087851 **Received** : 22 Aug 2023  
**Lab Number** : **05931416** **Diagnosed** : 24 Aug 2023  
**Unique Number** : 10616687 **Diagnostician** : Don Baldrige  
**Test Package** : FLEET

**GFL Environmental - 166 - Phenix City**  
 18 Old Brickyard Rd  
 Phenix City, AL  
 US 36869  
 Contact: DEAN PEACE JR  
 dean.peace@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)