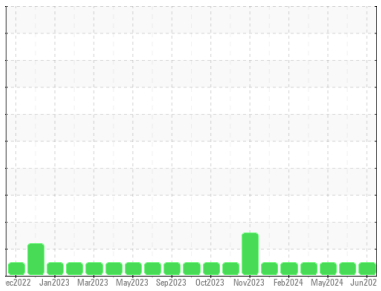
# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Machine Id
**933025**
Component
**Natural Gas Engine**
Fluid
**PETRO CANADA DURON GEO LD 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 | | **GFL0120206** | GFL0117218 | GFL0117241 |
| Sample Date | | Client Info | | **05 Jun 2024** | 17 May 2024 | 01 May 2024 |
| Machine Age | hrs | Client Info | | **2780** | 2646 | 2524 |
| Oil Age | hrs | Client Info | | **0** | 0 | 1200 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **9** | 10 | 9 |
| Chromium | ppm | ASTM D5185m | >4 | **1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **7** | 3 | 5 |
| Lead | ppm | ASTM D5185m | >30 | **14** | 2 | 2 |
| Copper | ppm | ASTM D5185m | >35 | **7** | 3 | <1 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **3** | 14 | 19 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **51** | 53 | 53 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 1 | 0 |
| Magnesium | ppm | ASTM D5185m | 560 | **555** | 539 | 620 |
| Calcium | ppm | ASTM D5185m | 1510 | **1531** | 1697 | 1817 |
| Phosphorus | ppm | ASTM D5185m | 780 | **753** | 780 | 898 |
| Zinc | ppm | ASTM D5185m | 870 | **920** | 1004 | 1119 |
| Sulfur | ppm | ASTM D5185m | 2040 | **2596** | 3035 | 3252 |

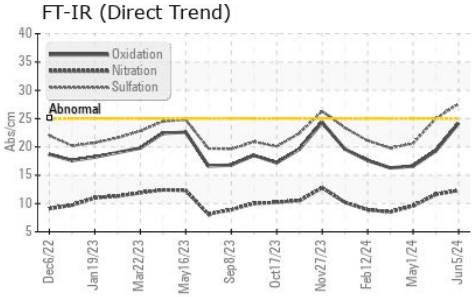
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **10** | 5 | 6 |
| Sodium | ppm | ASTM D5185m | | **5** | 9 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 2 | 10 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0.1** | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **12.3** | 11.6 | 9.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **27.6** | 25.0 | 20.6 |

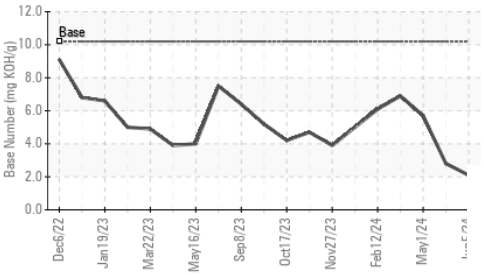
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **24.2** | 19.3 | 16.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **2.1** | 2.8 | 5.7 |

# OIL ANALYSIS REPORT

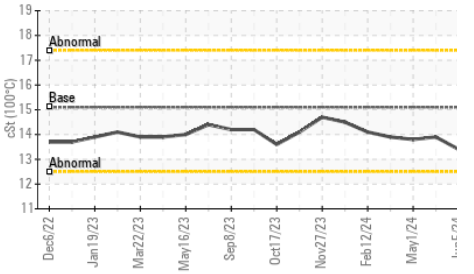
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

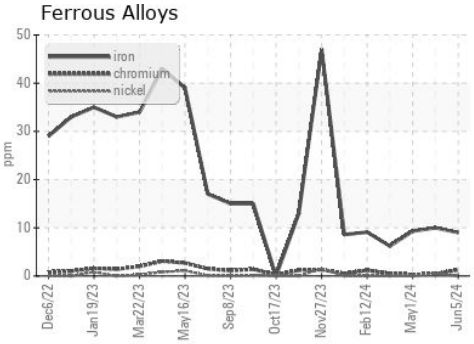



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

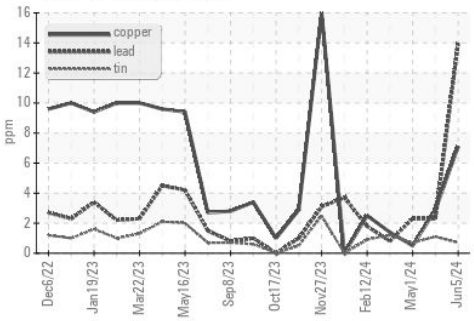
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | **13.4** | 13.9 | 13.8 |

## GRAPHS

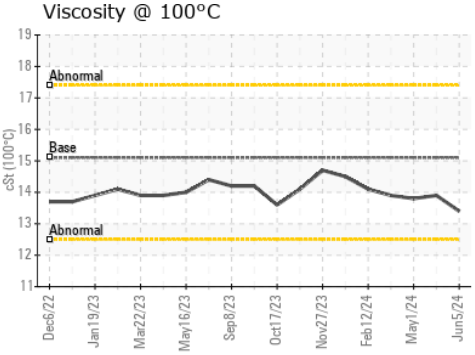
Ferrous Alloys



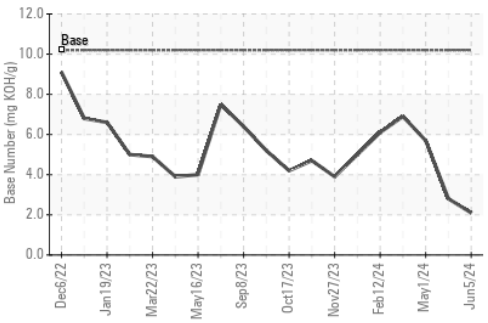

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0120206
**Lab Number** : 06202484
**Unique Number** : 11069945
**Test Package** : FLEET

**Received** : 07 Jun 2024
**Tested** : 11 Jun 2024
**Diagnosed** : 11 Jun 2024 - Sean Felton

*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)*

**GFL Environmental - 836 - Kansas City Hauling**
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Kansas City, MO
US 64126
Contact: Loyce Stewart
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T:
F:

Report Id: GFL836 [WUSCAR] 06202484 (Generated: 06/11/2024 14:11:15) Rev: 1

Contact/Location: GFL823,834,836,837,840 - Loyce Stewart - GFL836