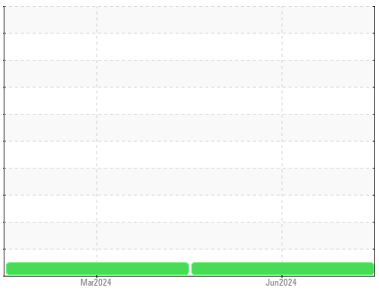
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**(TVF8498)**
Machine Id
**734024**
Component
**Natural Gas Engine**
Fluid
**PETRO CANADA DURON GEO LD 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. ( Customer Sample Comment: Engine oil sample )

**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 | | **GFL0125182** | GFL0114407 | --- |
| Sample Date | | Client Info | | **29 Jun 2024** | 27 Mar 2024 | --- |
| Machine Age | hrs | Client Info | | **1423** | 8106 | --- |
| Oil Age | hrs | Client Info | | **1423** | 8106 | --- |
| Oil Changed | | Client Info | | **Not Changd** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **15** | 39 | --- |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | 0 | --- |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | --- |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >9 | **6** | 11 | --- |
| Lead | ppm | ASTM D5185m | >30 | **<1** | <1 | --- |
| Copper | ppm | ASTM D5185m | >35 | **6** | 17 | --- |
| Tin | ppm | ASTM D5185m | >4 | **<1** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **8** | 6 | --- |
| Barium | ppm | ASTM D5185m | 5 | **<1** | 2 | --- |
| Molybdenum | ppm | ASTM D5185m | 50 | **54** | 53 | --- |
| Manganese | ppm | ASTM D5185m | 0 | **3** | 14 | --- |
| Magnesium | ppm | ASTM D5185m | 560 | **597** | 813 | --- |
| Calcium | ppm | ASTM D5185m | 1510 | **1695** | 1370 | --- |
| Phosphorus | ppm | ASTM D5185m | 780 | **725** | 733 | --- |
| Zinc | ppm | ASTM D5185m | 870 | **995** | 927 | --- |
| Sulfur | ppm | ASTM D5185m | 2040 | **2909** | 2837 | --- |

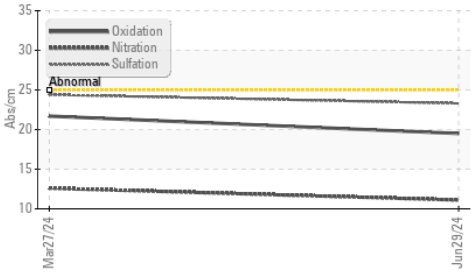
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **9** | 33 | --- |
| Sodium | ppm | ASTM D5185m | | **7** | 5 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **25** | 45 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.1** | 12.6 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.3** | 24.4 | --- |

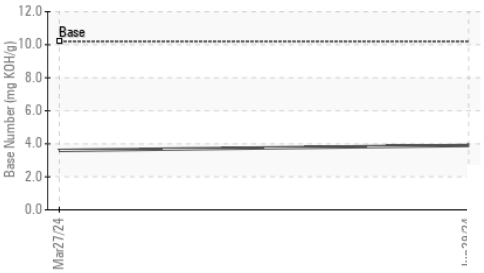
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.5** | 21.7 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **3.9** | 3.6 | --- |

# OIL ANALYSIS REPORT

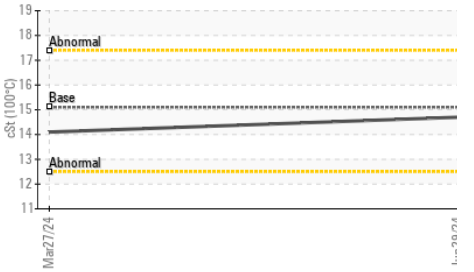
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

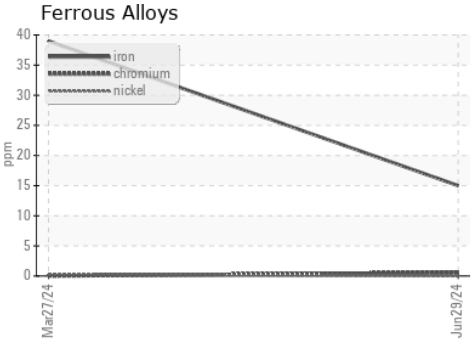



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt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

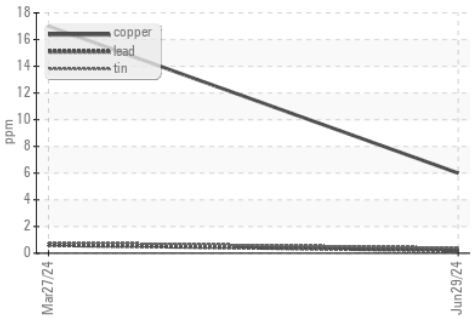
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | **14.7** | 14.1 | --- |

## GRAPHS

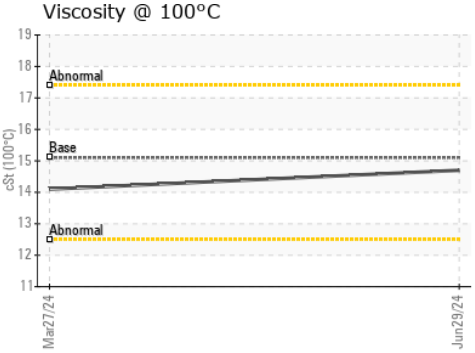
Ferrous Alloys



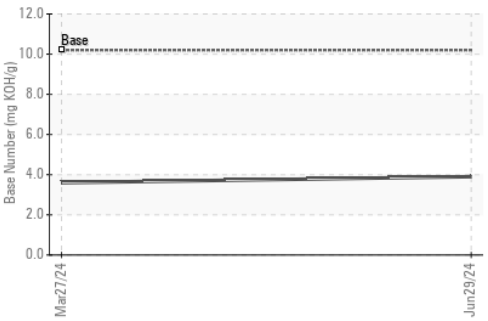

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0125182
**Lab Number** : 06229576
**Unique Number** : 11113069
**Test Package** : FLEET

**Received** : 05 Jul 2024
**Tested** : 09 Jul 2024
**Diagnosed** : 09 Jul 2024 - Jonathan Hester

*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 - 865 - East Mount Hauling**
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T:
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Report Id: GFL865 [WUSCAR] 06229576 (Generated: 07/09/2024 13:37:38) Rev: 1

Submitted By: TECHNICIAN ACCOUNT