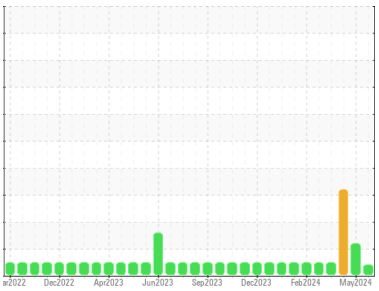
# OIL ANALYSIS REPORT

Sample Rating Trend




**VISCOSITY**

Machine Id
**912066**
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**
All component wear rates are normal.

**Contamination**
There is no indication of any contamination in the oil.

**Fluid Condition**
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0120161** | GFL0117249 | GFL0117235 |
| Sample Date | | Client Info | | **29 May 2024** | 04 May 2024 | 30 Apr 2024 |
| Machine Age | hrs | Client Info | | **6072** | 5922 | 5890 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **MARGINAL** | ABNORMAL | ABNORMAL |

| 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 | **37** | 6 | ▲ 52 |
| Chromium | ppm | ASTM D5185m | >4 | **3** | 1 | 1 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 1 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **7** | 4 | 3 |
| Lead | ppm | ASTM D5185m | >30 | **<1** | 5 | <1 |
| Copper | ppm | ASTM D5185m | >35 | **2** | 2 | 17 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 2 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 2 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **3** | <1 | 14 |
| Barium | ppm | ASTM D5185m | 5 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **60** | 45 | 60 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 1 | 0 |
| Magnesium | ppm | ASTM D5185m | 560 | **882** | 544 | 670 |
| Calcium | ppm | ASTM D5185m | 1510 | **1119** | 1778 | 1592 |
| Phosphorus | ppm | ASTM D5185m | 780 | **1034** | 808 | 863 |
| Zinc | ppm | ASTM D5185m | 870 | **1179** | 1004 | 1131 |
| Sulfur | ppm | ASTM D5185m | 2040 | **3031** | 3063 | 3046 |

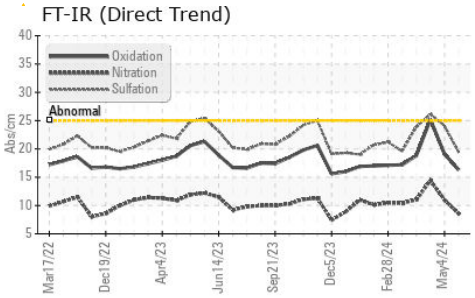
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **18** | 6 | 10 |
| Sodium | ppm | ASTM D5185m | | **5** | 11 | ▲ 198 |
| Potassium | ppm | ASTM D5185m | >20 | **9** | 3 | ▲ 22 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0.4** | 0.1 | 1.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.6** | 11.0 | 14.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.4** | 24.1 | 26.1 |

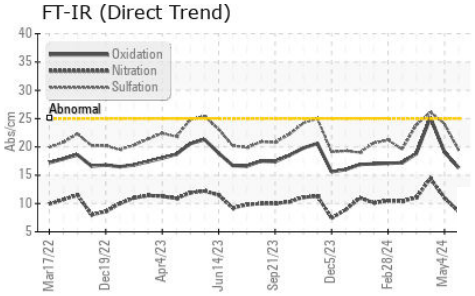
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.3** | 19.1 | 25.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **8.0** | ▲ 1.6 | 5.8 |

# OIL ANALYSIS REPORT

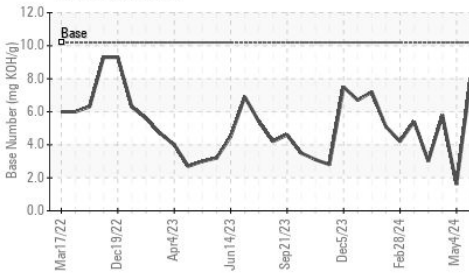
FT-IR (Direct Trend)




FT-IR (Direct Trend)




Base Number

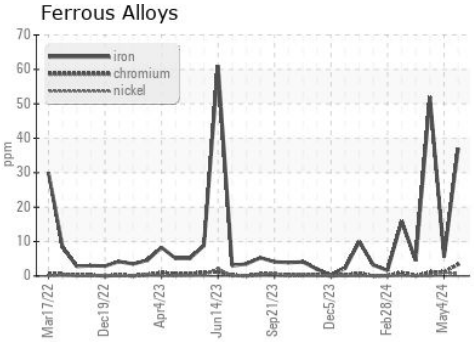



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

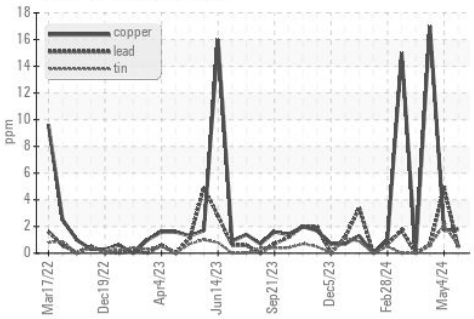
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | ▲ **12.3** | 13.4 | 12.8 |

## GRAPHS

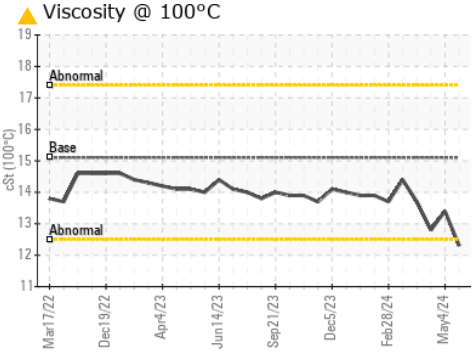
Ferrous Alloys



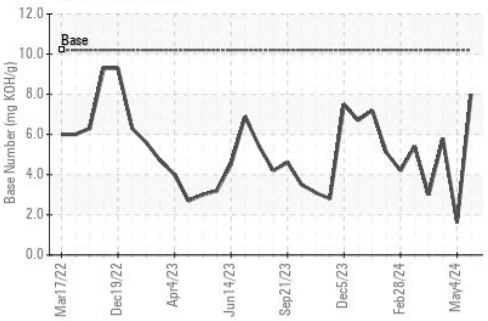

Non-ferrous Metals




▲ Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0120161
**Lab Number** : 06196309
**Unique Number** : 11058432
**Test Package** : FLEET ( Additional Tests: FUELDILUTION )

**Received** : 31 May 2024
**Tested** : 03 Jun 2024
**Diagnosed** : 03 Jun 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)*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