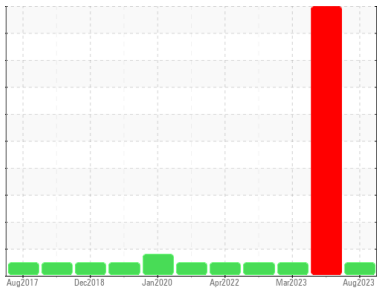
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**9171**
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**
No evidence of coolant present in the oil. 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 | | **GFL0083451** | GFL0083500 | GFL0074181 |
| Sample Date | | Client Info | | **10 Aug 2023** | 01 Jun 2023 | 28 Mar 2023 |
| Machine Age | hrs | Client Info | | **16028** | 15576 | 15001 |
| Oil Age | hrs | Client Info | | **16028** | 15576 | 15001 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Changed |
| Sample Status | | | | **NORMAL** | SEVERE | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **9** | ▲ 67 | 23 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | ▲ 6 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | ▲ 4 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **3** | ⬢ 43 | 9 |
| Lead | ppm | ASTM D5185m | >30 | **0** | 8 | <1 |
| Copper | ppm | ASTM D5185m | >35 | **27** | ▲ 158 | 6 |
| Tin | ppm | ASTM D5185m | >4 | **0** | <1 | <1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Beryllium | ppm | ASTM D5185m | | **---** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **42** | 2 | 20 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **54** | 259 | 49 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 2 | <1 |
| Magnesium | ppm | ASTM D5185m | 560 | **611** | 544 | 511 |
| Calcium | ppm | ASTM D5185m | 1510 | **1697** | 1658 | 1510 |
| Phosphorus | ppm | ASTM D5185m | 780 | **799** | 615 | 741 |
| Zinc | ppm | ASTM D5185m | 870 | **968** | 932 | 946 |
| Sulfur | ppm | ASTM D5185m | 2040 | **3000** | 2985 | 2528 |
| Lithium | ppm | ASTM D5185m | | **---** | --- | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **5** | 21 | 5 |
| Sodium | ppm | ASTM D5185m | | **17** | ▲ 690 | 8 |
| Potassium | ppm | ASTM D5185m | >20 | **19** | ▲ 1014 | 1 |
| Glycol | % | *ASTM D2982 | | **---** | ⬢ 0.10 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0.1** | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.5** | 12.4 | 9.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.6** | 24.6 | 19.5 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.5** | 19.7 | 16.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **8.4** | 6.3 | 7.5 |

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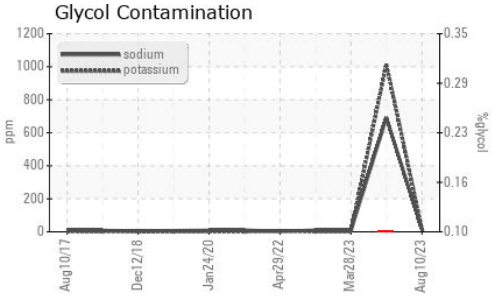
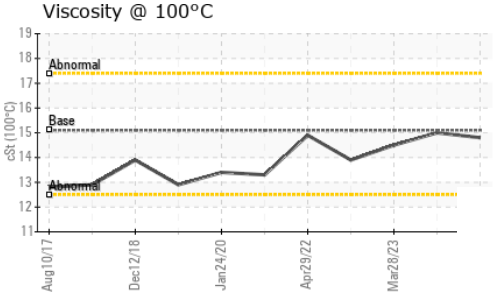
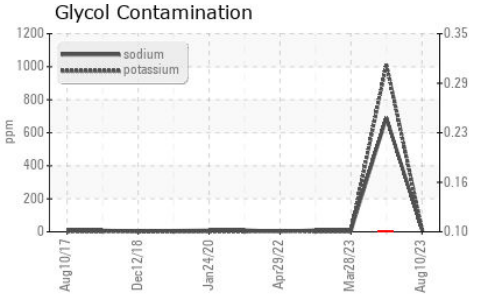
Glycol Contamination




Viscosity @ 100°C




Glycol Contamination

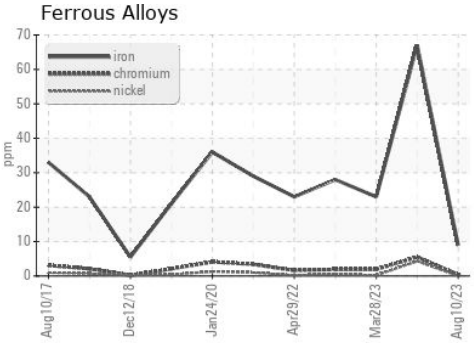



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

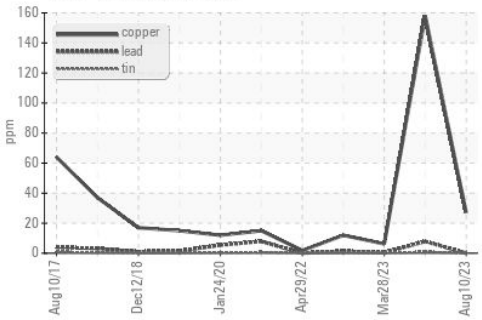
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | **14.8** | 15.0 | 14.5 |

## GRAPHS

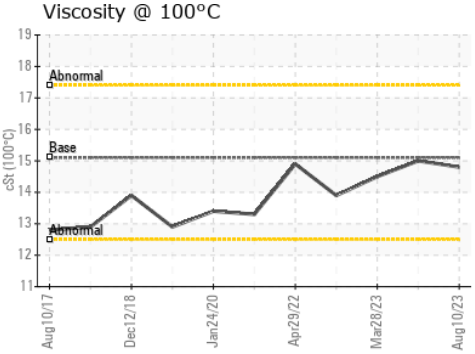
Ferrous Alloys



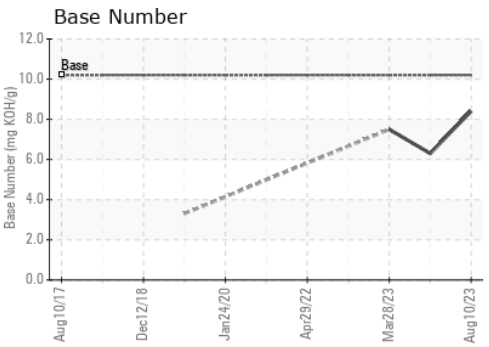

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0083451
**Lab Number** : 05929198
**Unique Number** : 10609145
**Test Package** : FLEET

**Received** : 21 Aug 2023
**Diagnosed** : 22 Aug 2023
**Diagnostician** : 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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