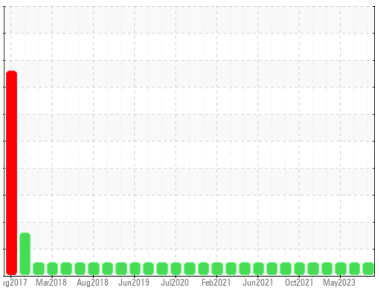
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
**(YA139852)**
Machine Id
**10746C**
Component
**Natural Gas Engine**
Fluid
**PETRO CANADA DURON GEO LD 15W40 (30 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 | | **GFL0123372** | GFL0082420 | GFL0082459 |
| Sample Date | | Client Info | | **20 Jun 2024** | 26 Oct 2023 | 09 May 2023 |
| Machine Age | hrs | Client Info | | **12457** | 12457 | 0 |
| Oil Age | hrs | Client Info | | **12457** | 12457 | 0 |
| Oil Changed | | Client Info | | **N/A** | Changed | N/A |
| 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 | **13** | 15 | 30 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | 2 | 3 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | 2 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >9 | **1** | 2 | 1 |
| Lead | ppm | ASTM D5185m | >30 | **15** | 10 | 21 |
| Copper | ppm | ASTM D5185m | >35 | **8** | 3 | 6 |
| Tin | ppm | ASTM D5185m | >4 | **2** | 2 | 8 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 50 | **21** | 4 | 6 |
| Barium | ppm | ASTM D5185m | 5 | **0** | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | 50 | **50** | 58 | 59 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | 3 |
| Magnesium | ppm | ASTM D5185m | 560 | **596** | 587 | 563 |
| Calcium | ppm | ASTM D5185m | 1510 | **1692** | 1788 | 1588 |
| Phosphorus | ppm | ASTM D5185m | 780 | **843** | 842 | 706 |
| Zinc | ppm | ASTM D5185m | 870 | **1053** | 1010 | 993 |
| Sulfur | ppm | ASTM D5185m | 2040 | **2999** | 2425 | 2931 |

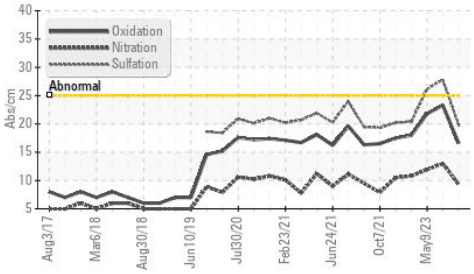
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **4** | 4 | 15 |
| Sodium | ppm | ASTM D5185m | | **5** | 12 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 2 | 3 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.3** | 13.0 | 11.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.9** | 27.8 | 26.1 |

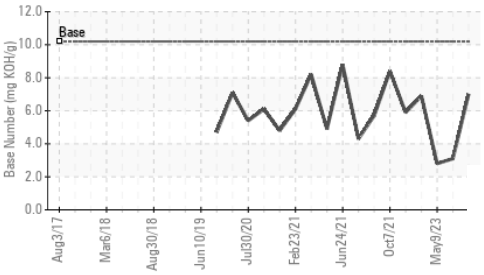
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.6** | 23.3 | 21.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.2 | **7.0** | 3.1 | 2.8 |

# OIL ANALYSIS REPORT

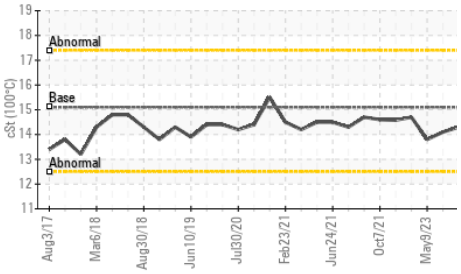
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

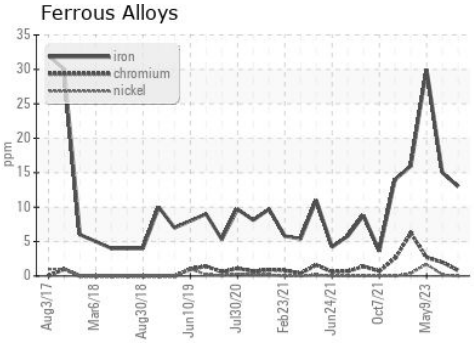



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

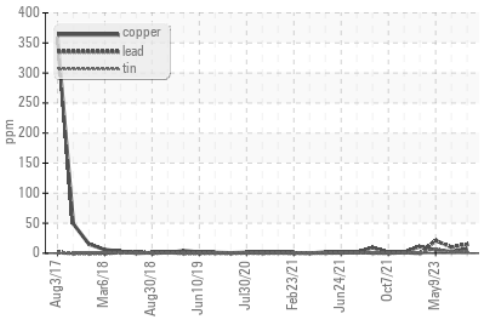
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.1 | **14.3** | 14.1 | 13.8 |

## GRAPHS

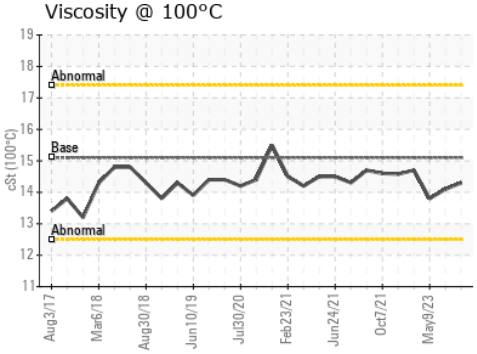
Ferrous Alloys



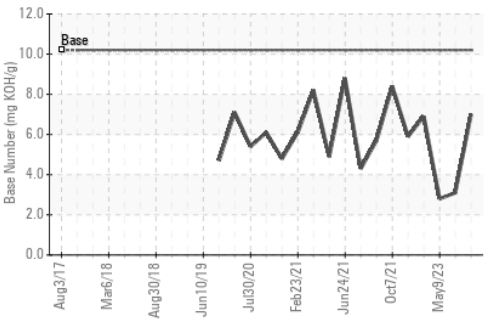

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0123372
**Lab Number** : 06223341
**Unique Number** : 11101538
**Test Package** : FLEET

**Received** : 28 Jun 2024
**Tested** : 01 Jul 2024
**Diagnosed** : 01 Jul 2024 - Wes Davis

**GFL Environmental - 007 - Brunswick**
2809 Galloway Road
Bolivia, NC
US 28422
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T:
F: (910)253-4179

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
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*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*