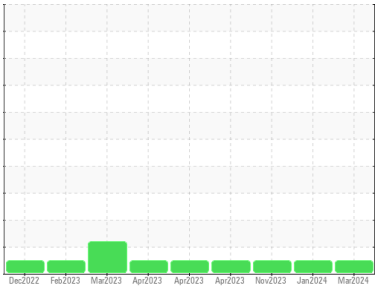
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**933026**
Component
**Natural Gas Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (28 QTS)**

## 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 | | **GFL0106841** | GFL0078140 | GFL0084655 |
| Sample Date | | Client Info | | **07 Mar 2024** | 09 Jan 2024 | 02 Nov 2023 |
| Machine Age | hrs | Client Info | | **5435** | 4887 | 48244 |
| Oil Age | hrs | Client Info | | **48244** | 600 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | 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 | **4** | 8 | 5 |
| Chromium | ppm | ASTM D5185m | >4 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **1** | 2 | 2 |
| Lead | ppm | ASTM D5185m | >30 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >35 | **<1** | 1 | <1 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **11** | 10 | 13 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **48** | 49 | 51 |
| Manganese | ppm | ASTM D5185m | 0 | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **481** | 521 | 609 |
| Calcium | ppm | ASTM D5185m | 1070 | **1527** | 1536 | 1627 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **693** | 761 | 738 |
| Zinc | ppm | ASTM D5185m | 1270 | **856** | 932 | 1025 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2407** | 2345 | 2576 |

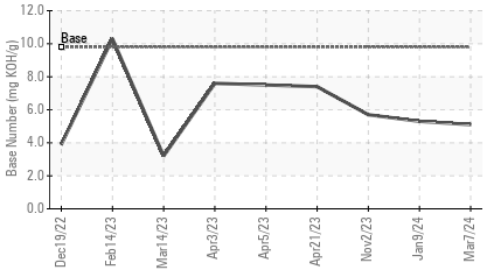
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **4** | 5 | 5 |
| Sodium | ppm | ASTM D5185m | | **6** | 6 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 2 | 4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.0** | 10.1 | 9.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.0** | 20.6 | 20.5 |

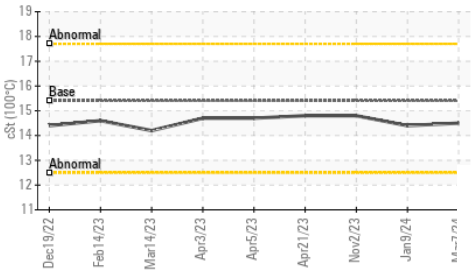
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.7** | 17.6 | 17.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **5.1** | 5.3 | 5.7 |

# OIL ANALYSIS REPORT

Base Number




Viscosity @ 100°C

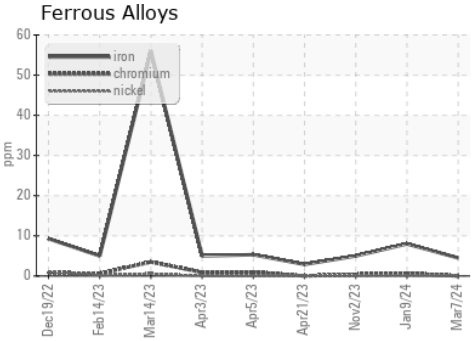



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

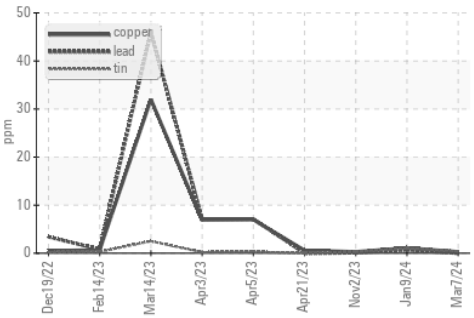
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.5** | 14.4 | 14.8 |

## GRAPHS

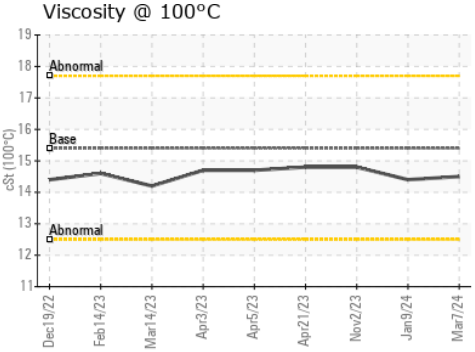
Ferrous Alloys



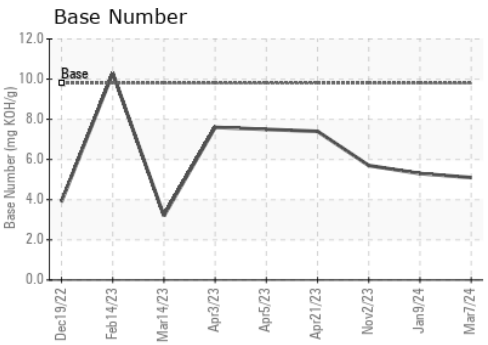

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0106841
**Lab Number** : 06114878
**Unique Number** : 10923711
**Test Package** : FLEET

**Received** : 11 Mar 2024
**Tested** : 12 Mar 2024
**Diagnosed** : 13 Mar 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 - 856 - Houston South**
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Report Id: GFL856 [WUSCAR] 06114878 (Generated: 03/13/2024 15:15:27) Rev: 1

Submitted By: Apolinar Zacarias