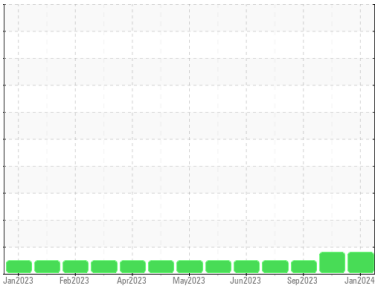
# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Area
**(62A0YYT) TALLASSEE**
Machine Id
**913044**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**

No corrective action is recommended at this time. Resample at the next service interval to monitor.

**▲ Wear**

Valve wear is indicated.

**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. Confirm oil type. The condition of the oil is suitable for further service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0081856** | GFL0079717 | GFL0079698 |
| Sample Date | | Client Info | | **25 Jan 2024** | 20 Dec 2023 | 27 Sep 2023 |
| Machine Age | hrs | Client Info | | **3722** | 32158 | 3000 |
| Oil Age | hrs | Client Info | | **1442** | 29878 | 720 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **24** | 17 | 9 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | ▲ **10** | ▲ 7 | 1 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 2 | 3 |
| Lead | ppm | ASTM D5185m | >40 | **<1** | 0 | 1 |
| Copper | ppm | ASTM D5185m | >330 | **6** | 6 | 3 |
| Tin | ppm | ASTM D5185m | >15 | **2** | 0 | 2 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **5** | 6 | 18 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **63** | 62 | 61 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **1009** | 966 | 903 |
| Calcium | ppm | ASTM D5185m | 1070 | **1101** | 1094 | 1102 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1075** | 1016 | 972 |
| Zinc | ppm | ASTM D5185m | 1270 | **1344** | 1221 | 1194 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3093** | 3257 | 2867 |

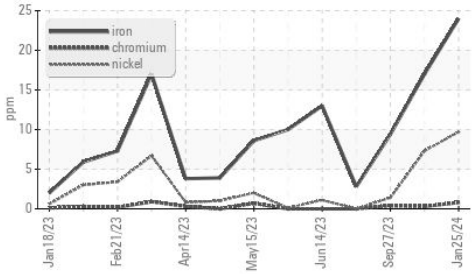
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **8** | 6 | 7 |
| Sodium | ppm | ASTM D5185m | | **4** | 2 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **8** | 6 | 5 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.8** | 0.6 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.3** | 8.0 | 7.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.6** | 19.6 | 19.8 |

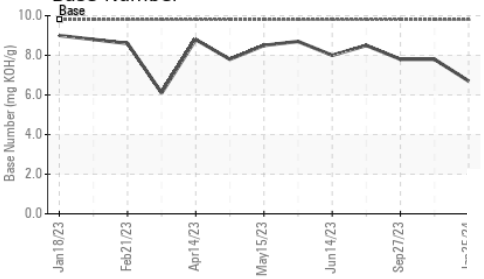
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.2** | 15.1 | 15.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.7** | 7.8 | 7.8 |

# OIL ANALYSIS REPORT

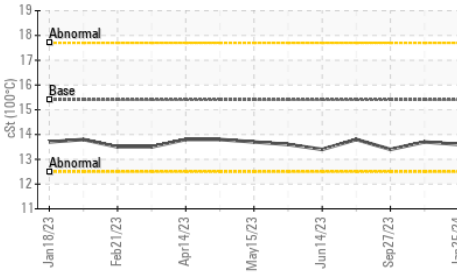
Ferrous Alloys




Base Number




Viscosity @ 100°C

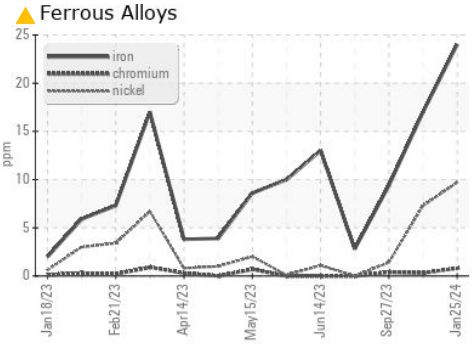



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

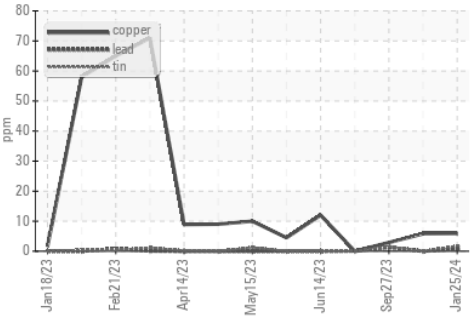
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.6** | 13.7 | 13.4 |

## GRAPHS

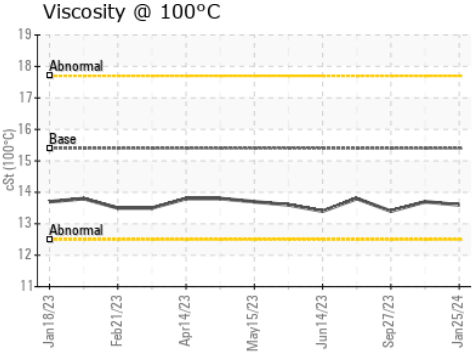
Ferrous Alloys



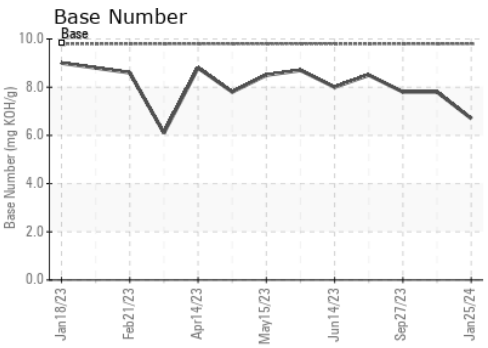

Non-ferrous Metals




Viscosity @ 100°C




Base Number





**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0081856
**Lab Number** : 06078978
**Unique Number** : 10861069
**Test Package** : FLEET

**Received** : 02 Feb 2024
**Tested** : 05 Feb 2024
**Diagnosed** : 06 Feb 2024 - Jonathan Hester

Certificate L2367

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee
Multiple Sites
Montgomery, AL
US 36108
Contact: BRANDON HURST
brandonhurst@gflenv.com
T:
F:


*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)*