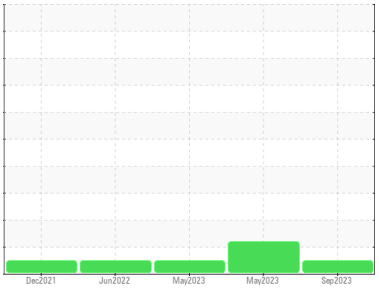
# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Machine Id
**422014**
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**
All component wear rates are normal.

**Contamination**
Light fuel dilution occurring. No other contaminants were detected 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 | | **GFL0091549** | GFL0082815 | GFL0081232 |
| Sample Date | | Client Info | | **18 Sep 2023** | 30 May 2023 | 10 May 2023 |
| Machine Age | hrs | Client Info | | **24078** | 23728 | 23647 |
| Oil Age | hrs | Client Info | | **600** | 600 | 600 |
| Oil Changed | | Client Info | | **N/A** | Changed | Not Changd |
| Sample Status | | | | **NORMAL** | ABNORMAL | NORMAL |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Glycol | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **6** | 13 | 7 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >5 | **<1** | 1 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **1** | 3 | <1 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **1** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **<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 | **4** | 4 | 4 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **60** | 58 | 58 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 1010 | **963** | 988 | 953 |
| Calcium | ppm | ASTM D5185m | 1070 | **1108** | 1054 | 1093 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1089** | 1049 | 1022 |
| Zinc | ppm | ASTM D5185m | 1270 | **1304** | 1326 | 1260 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3987** | 3948 | 3521 |

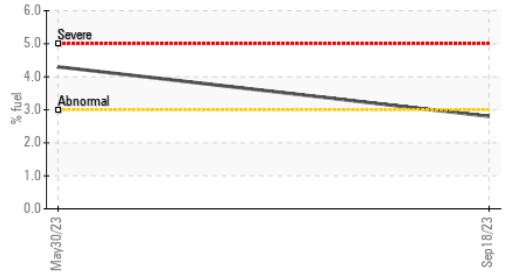
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **8** | 4 | 4 |
| Sodium | ppm | ASTM D5185m | | **3** | 3 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 3 | 1 |
| Fuel | % | ASTM D3524 | >3.0 | **2.8** | ▲ 4.3 | <1.0 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.1** | 0.2 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.0** | 9.4 | 7.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **17.6** | 19.4 | 18.2 |

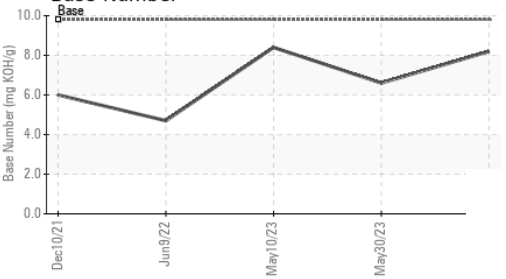
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.3** | 16.3 | 14.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.2** | 6.6 | 8.4 |

# OIL ANALYSIS REPORT

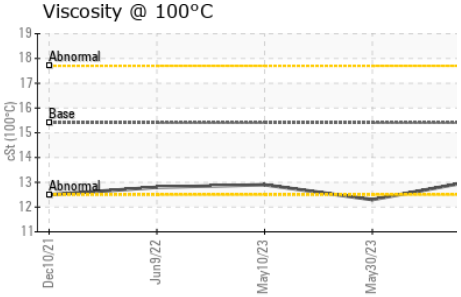
Fuel Dilution




Base Number




Viscosity @ 100°C

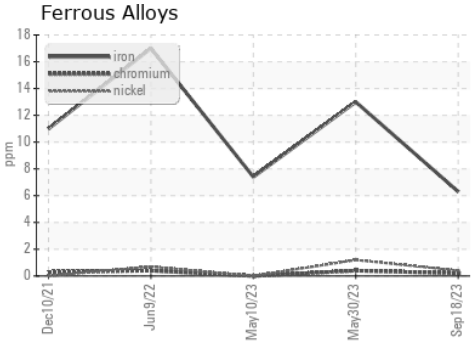



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

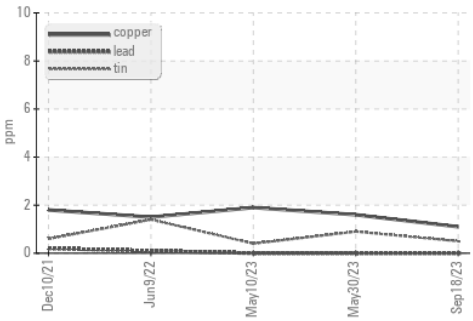
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.1** | ▲ 12.3 | 12.9 |

## GRAPHS

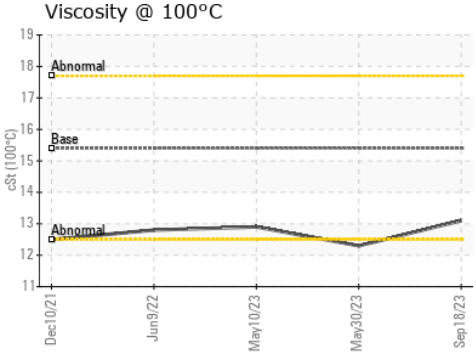
Ferrous Alloys



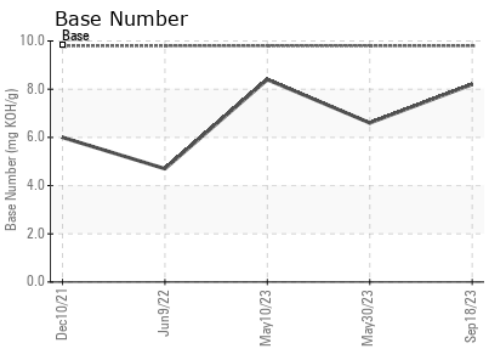

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0091549 **Received** : 20 Sep 2023
**Lab Number** : 05956957 **Diagnosed** : 21 Sep 2023
**Unique Number** : 10658170 **Diagnostician** : Wes Davis
**Test Package** : FLEET ( Additional Tests: PercentFuel )

*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 - 465 - Pontiac**
888 Baldwin
Pontiac, MI
US 48340
Contact: Ricky Matthews
rickymathews@gflenv.com
T: (586)825-9514
F: