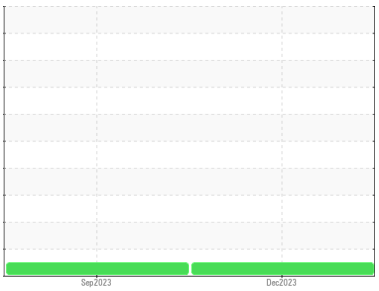
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**{UNASSIGNED}**
Machine Id
**913131**
Component
**1 Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (9 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 | | **GFL0097745** | GFL0087266 | --- |
| Sample Date | | Client Info | | **13 Dec 2023** | 24 Sep 2023 | --- |
| Machine Age | hrs | Client Info | | **1926** | 1259 | --- |
| Oil Age | hrs | Client Info | | **667** | 602 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **25** | 14 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >5 | **<1** | <1 | --- |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | 1 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Lead | ppm | ASTM D5185m | >40 | **<1** | 0 | --- |
| Copper | ppm | ASTM D5185m | >330 | **34** | 72 | --- |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **3** | 7 | --- |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 60 | **57** | 59 | --- |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 1010 | **887** | 907 | --- |
| Calcium | ppm | ASTM D5185m | 1070 | **1037** | 1081 | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **880** | 957 | --- |
| Zinc | ppm | ASTM D5185m | 1270 | **1183** | 1215 | --- |
| Sulfur | ppm | ASTM D5185m | 2060 | **2135** | 2463 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **7** | 8 | --- |
| Sodium | ppm | ASTM D5185m | | **6** | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 0 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.6** | 0.4 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.0** | 8.4 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.4** | 20.4 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.5** | 17.0 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **4.8** | 6.6 | --- |

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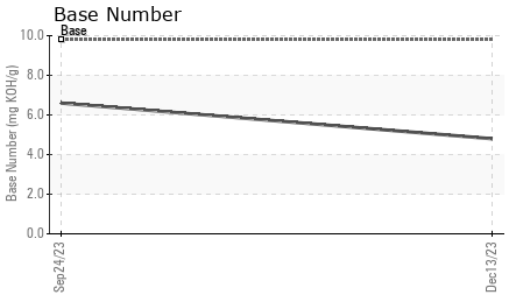
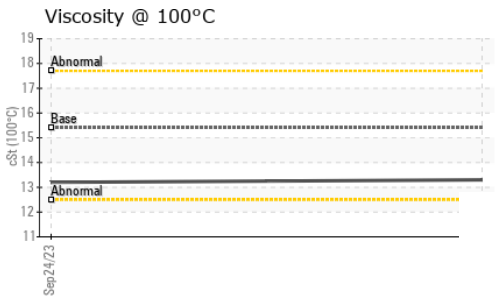


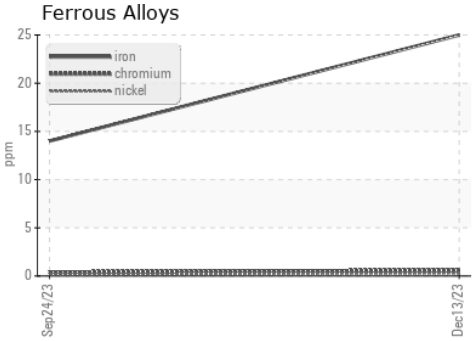




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

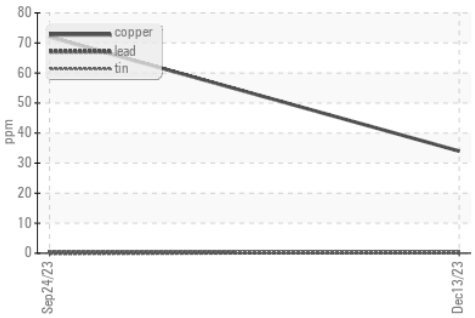
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.3** | 13.2 | --- |

## GRAPHS

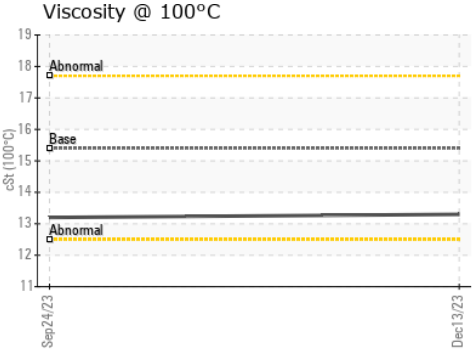
Ferrous Alloys



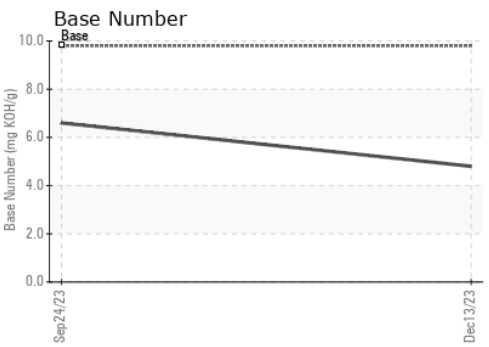

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0097745
**Lab Number** : 06042842
**Unique Number** : 10803450
**Test Package** : FLEET

**Recieved** : 22 Dec 2023
**Diagnosed** : 26 Dec 2023
**Diagnostician** : Wes Davis

*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 - 405 - Arbor Hills**
7400 Napier Rd
NORTHVILLE, MI
US 48168
Contact: Anthony Hopkins
ahopkins@gflenv.com
T:
F: