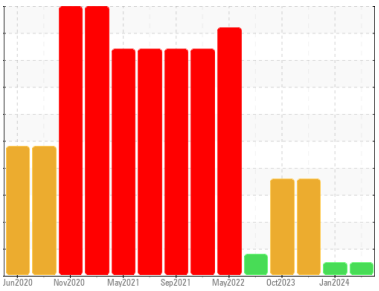
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
**(40957HA)**
Machine Id
**826028-1018**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- LTR)**

## 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 | | **GFL0108248** | GFL0108531 | GFL0083888 |
| Sample Date | | Client Info | | **07 Feb 2024** | 19 Jan 2024 | 22 Nov 2023 |
| Machine Age | hrs | Client Info | | **17751** | 0 | 17549 |
| Oil Age | hrs | Client Info | | **14895** | 0 | 17549 |
| Oil Changed | | Client Info | | **Changed** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | ABNORMAL |

| 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 | >90 | **32** | 7 | 68 |
| Chromium | ppm | ASTM D5185m | >4 | **2** | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 3 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | **2** | 3 | 3 |
| Lead | ppm | ASTM D5185m | >50 | **2** | 0 | 7 |
| Copper | ppm | ASTM D5185m | >55 | **6** | 2 | 9 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 0 | 1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **20** | 1 | 5 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **84** | 59 | 65 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **1308** | 946 | 987 |
| Calcium | ppm | ASTM D5185m | 1070 | **1534** | 1140 | 1165 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1342** | 1054 | 1034 |
| Zinc | ppm | ASTM D5185m | 1270 | **1735** | 1224 | 1285 |
| Sulfur | ppm | ASTM D5185m | 2060 | **4073** | 3088 | 2566 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >15 | **10** | 3 | 11 |
| Sodium | ppm | ASTM D5185m | | **4** | 3 | 13 |
| Potassium | ppm | ASTM D5185m | >20 | **24** | <1 | ▲ 60 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **2** | 0.4 | ▲ 5.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.1** | 9.3 | 12.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.7** | 19.1 | 29.9 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.3** | 16.2 | 18.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.3** | 7.1 | ▲ 0.0 |

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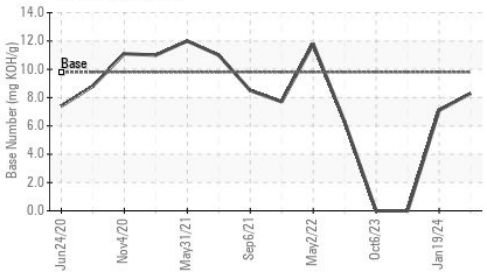
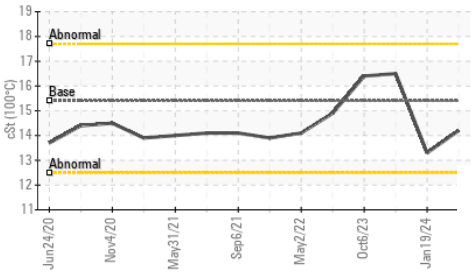
Base Number




Viscosity @ 100°C

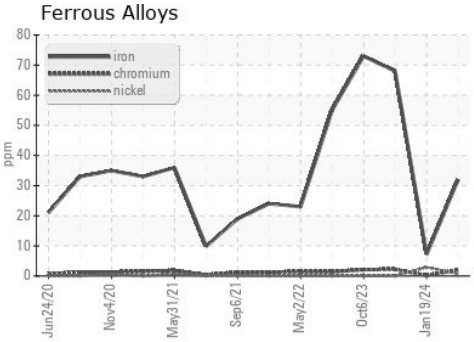



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

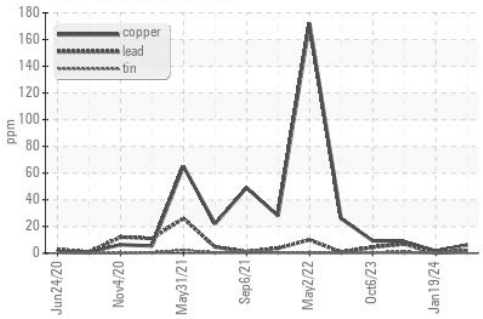
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.2** | 13.3 | ▲ 16.5 |

## GRAPHS

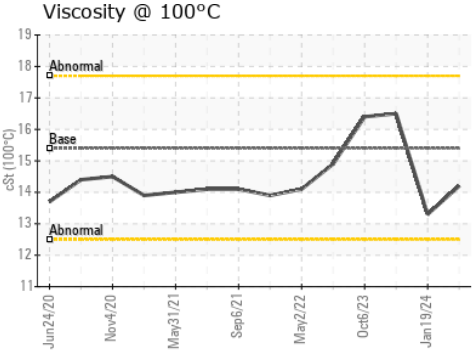
Ferrous Alloys



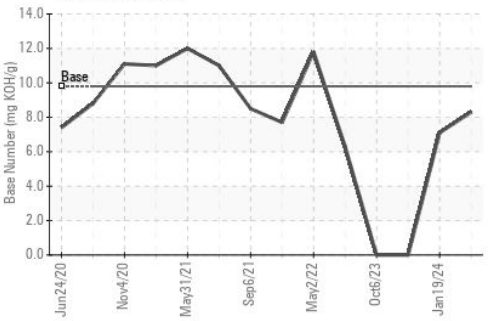

Non-ferrous Metals




Viscosity @ 100°C




Base Number





**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0108248
**Lab Number** : 06085262
**Unique Number** : 10872707
**Test Package** : FLEET

**Received** : 09 Feb 2024
**Tested** : 12 Feb 2024
**Diagnosed** : 12 Feb 2024 - Don Baldridge

Certificate L2367

**GFL Environmental - 652 - Fredericksburg Hauling**
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Fredericksburg, VA
US 22408
Contact: WILLIAM MILO
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T:
F:


*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
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