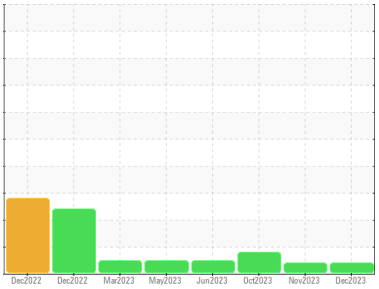
# PROBLEM SUMMARY

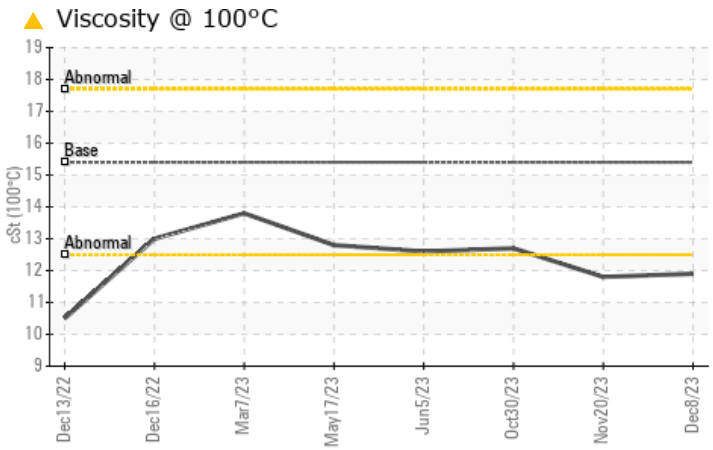
Machine Id
**413041**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (11 GAL)**

**Sample Rating Trend**




**VISCOSITY**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | ATTENTION | ATTENTION | ABNORMAL |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **11.9** | ▲ 11.8 | 12.7 |

**Customer Id:** GFL095
**Sample No.:** GFL0074625
**Lab Number:** 06034080
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Don Baldridge +1
don.b505@comcast.net

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

**20 Nov 2023 Diag: Sean Felton**

VISCOSITY

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

**30 Oct 2023 Diag: Don Baldridge**

WEAR

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.Valve wear is indicated. All other component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

view report

**05 Jun 2023 Diag: Wes Davis**

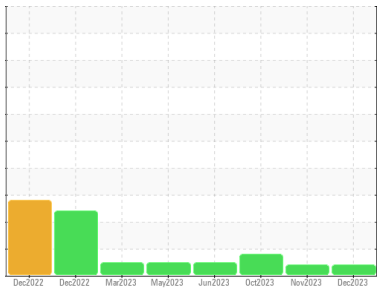
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend




**VISCOSITY**

Machine Id
**413041**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (11 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 oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0074625** | GFL0074634 | GFL0092481 |
| Sample Date | | Client Info | | **08 Dec 2023** | 20 Nov 2023 | 30 Oct 2023 |
| Machine Age | hrs | Client Info | | **3068** | 2934 | 2846 |
| Oil Age | hrs | Client Info | | **134** | 88 | 576 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Changed |
| Sample Status | | | | **ATTENTION** | ATTENTION | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | 0.3 | <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 | **2** | 6 | 27 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >5 | **2** | 4 | ▲ 12 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **1** | 2 | 4 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **0** | 3 | 22 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 1 |
| 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 | **8** | 5 | 6 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **52** | 56 | 60 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **738** | 727 | 843 |
| Calcium | ppm | ASTM D5185m | 1070 | **875** | 889 | 982 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **837** | 835 | 911 |
| Zinc | ppm | ASTM D5185m | 1270 | **1023** | 1023 | 1115 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2535** | 2823 | 2352 |

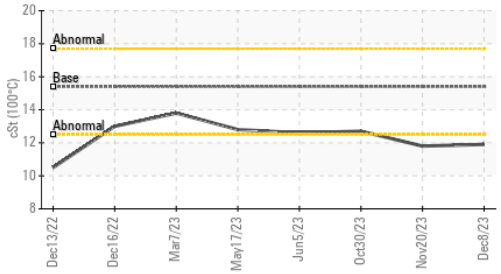
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **3** | 3 | 6 |
| Sodium | ppm | ASTM D5185m | | **<1** | 1 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **1** | 3 | 7 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.2** | 0.2 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.1** | 5.0 | 8.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **16.6** | 16.7 | 20.0 |

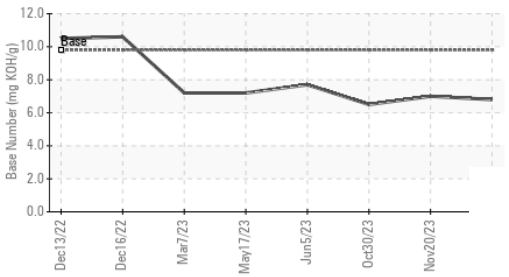
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **11.8** | 11.6 | 16.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **6.8** | 7.0 | 6.5 |

# OIL ANALYSIS REPORT

Viscosity @ 100°C




Base Number

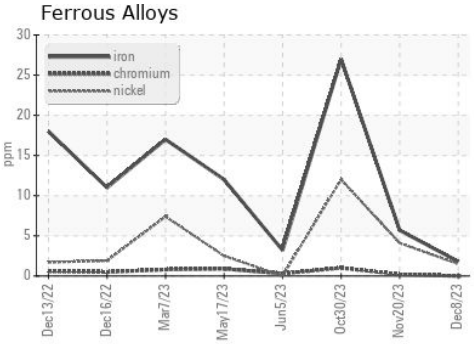



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

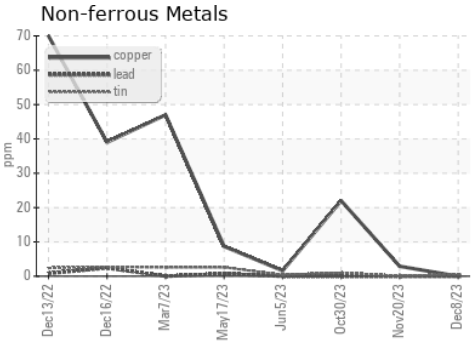
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | ▲ **11.9** | ▲ 11.8 | 12.7 |

## GRAPHS

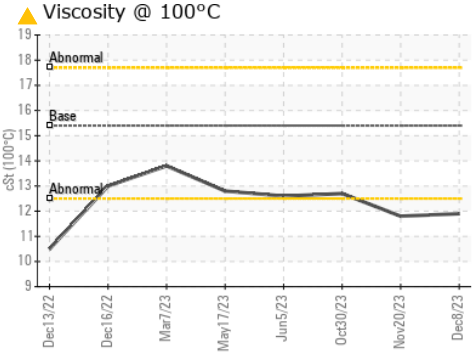
Ferrous Alloys



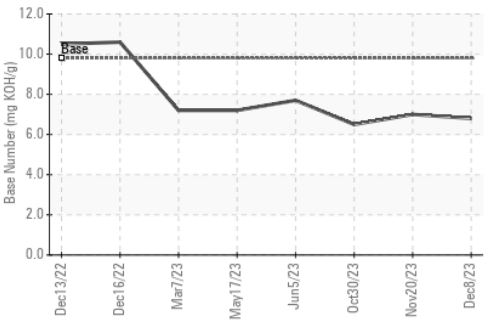

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0074625
**Lab Number** : 06034080
**Unique Number** : 10789309
**Test Package** : FLEET

**Recieved** : 13 Dec 2023
**Diagnosed** : 18 Dec 2023
**Diagnostician** : Don Baldridge

*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 - 095 - Atlanta West**
2699 Cochran Industrial Blvd
Douglasville, GA
US 30127-1332
Contact: Darrell Welch
darrell.welch@gflenv.com
T: (800)207-6618
F: