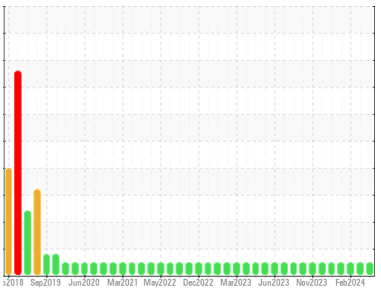
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
**(D705HW)**
Machine Id
**2718**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (40 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 | | **GFL0098879** | GFL0098885 | GFL0098865 |
| Sample Date | | Client Info | | **22 Apr 2024** | 10 Apr 2024 | 20 Feb 2024 |
| Machine Age | hrs | Client Info | | **14595** | 14748 | 14430 |
| Oil Age | hrs | Client Info | | **602** | 14062 | 14062 |
| Oil Changed | | Client Info | | **Changed** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | 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 | >165 | **12** | 11 | 10 |
| Chromium | ppm | ASTM D5185m | >5 | **<1** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | 3 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **1** | 3 | 2 |
| Lead | ppm | ASTM D5185m | >150 | **0** | 1 | <1 |
| Copper | ppm | ASTM D5185m | >90 | **0** | 26 | <1 |
| Tin | ppm | ASTM D5185m | >5 | **<1** | 2 | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 1 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **2** | <1 | 0 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **57** | 56 | 57 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **872** | 823 | 941 |
| Calcium | ppm | ASTM D5185m | 1070 | **1248** | 1051 | 1319 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1047** | 1006 | 1097 |
| Zinc | ppm | ASTM D5185m | 1270 | **1226** | 1106 | 1294 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3427** | 3174 | 3302 |

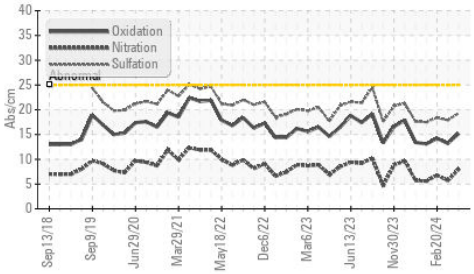
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >35 | **4** | 7 | 4 |
| Sodium | ppm | ASTM D5185m | | **3** | <1 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 6 | 3 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >7.5 | **0.2** | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.0** | 5.7 | 6.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.3** | 17.9 | 18.4 |

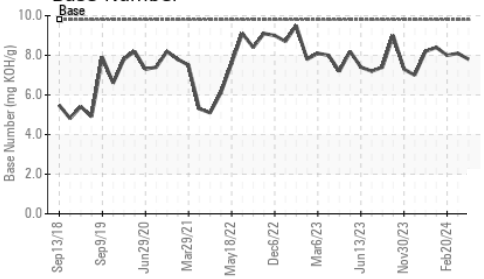
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.2** | 13.2 | 14.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **7.8** | 8.1 | 8.0 |

# OIL ANALYSIS REPORT

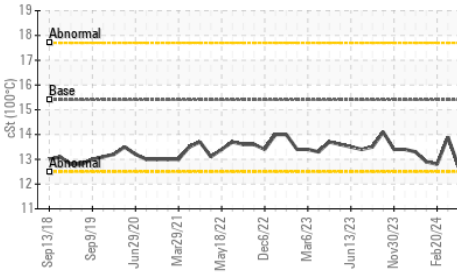
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

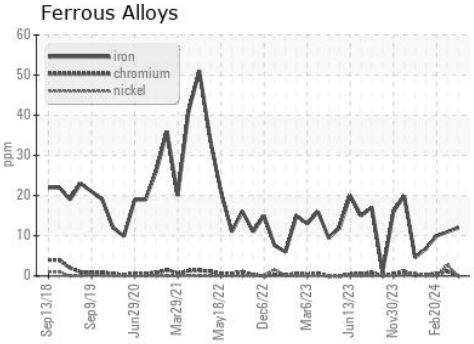



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

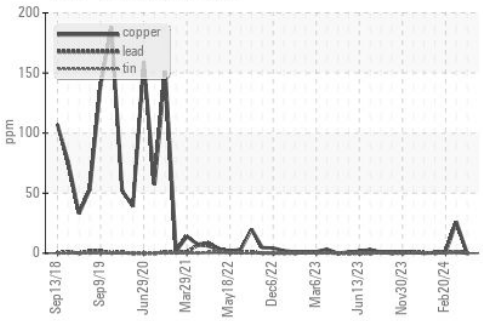
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **12.7** | 13.9 | 12.8 |

## GRAPHS

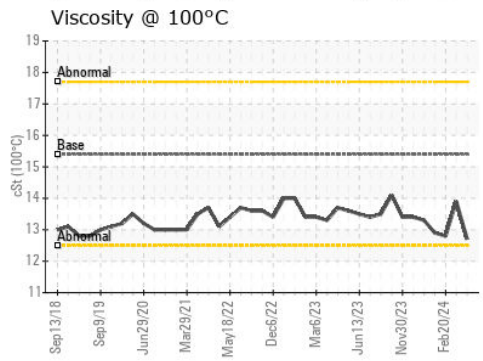
Ferrous Alloys



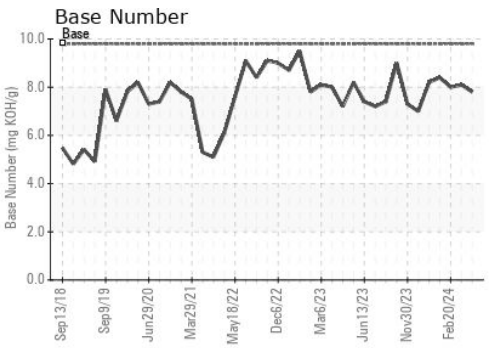

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0098879
**Lab Number** : 06157323
**Unique Number** : 10992746
**Test Package** : FLEET

**Received** : 23 Apr 2024
**Tested** : 24 Apr 2024
**Diagnosed** : 24 Apr 2024 - 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 - 084 - Clarksville**
699 Jack Miller Boulevard
Clarksville, TN
US 37042
Contact: ROBERT THIBAULT
robert.thibault@gflenv.com
T: (931)552-7276
F: (931)572-9674

Report Id: GFL084 [WUSCAR] 06157323 (Generated: 04/24/2024 10:56:00) Rev: 1

Submitted By: GFL084,GFL842,GFL844,GFL846 - ROBERT THIBAULT