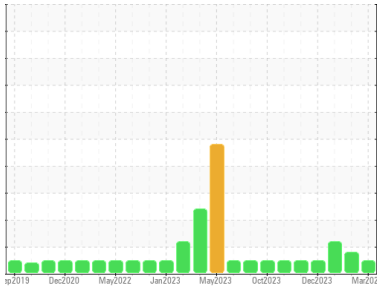
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**928074-205262**
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**
Fuel content negligible. 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 | | **GFL0109141** | GFL0109229 | GFL0098353 |
| Sample Date | | Client Info | | **06 Mar 2024** | 15 Feb 2024 | 24 Jan 2024 |
| Machine Age | hrs | Client Info | | **18728** | 18570 | 18288 |
| Oil Age | hrs | Client Info | | **700** | 700 | 600 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **NORMAL** | ABNORMAL | ABNORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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 | >100 | **5** | 26 | 18 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 18 | 1 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **0** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **0** | 0 | 1 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **58** | 61 | 51 |
| Manganese | ppm | ASTM D5185m | 0 | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **887** | 981 | 914 |
| Calcium | ppm | ASTM D5185m | 1070 | **1020** | 1075 | 949 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1011** | 1071 | 975 |
| Zinc | ppm | ASTM D5185m | 1270 | **1161** | 1276 | 1136 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3071** | 3105 | 2846 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 6 | 4 |
| Sodium | ppm | ASTM D5185m | | **6** | 31 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **5** | 24 | <1 |
| Fuel | % | ASTM D3524 | >5 | **0.8** | ▲ 2.3 | ▲ 7.4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.3** | 1 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.2** | 9.6 | 7.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **17.8** | 20.5 | 18.3 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.5** | 16.4 | 14.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.4** | 8.0 | 8.2 |

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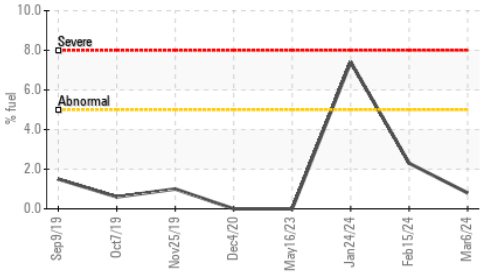
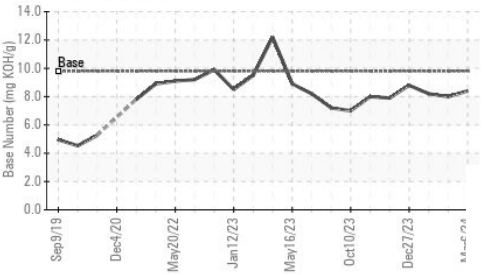
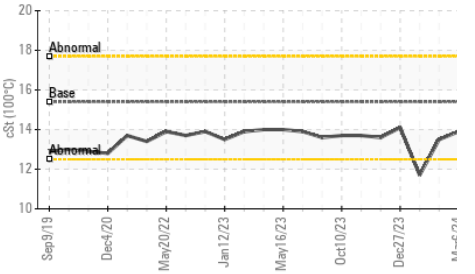
Fuel Dilution




Base Number




Viscosity @ 100°C

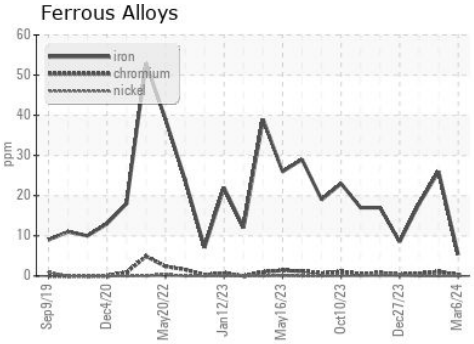



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

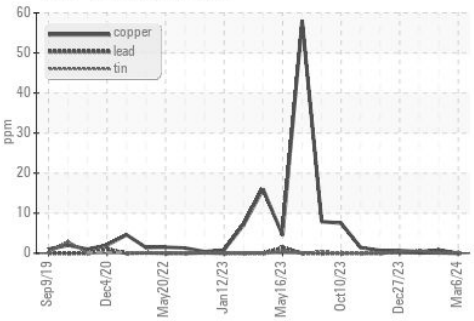
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.9** | 13.5 | ▲ 11.7 |

## GRAPHS

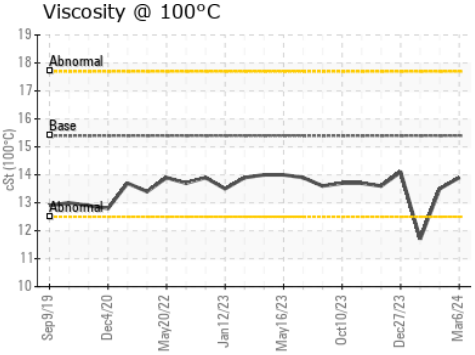
Ferrous Alloys



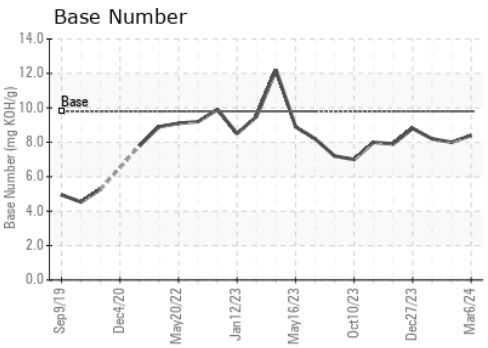

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0109141
**Lab Number** : 06116771
**Unique Number** : 10925604
**Test Package** : FLEET ( Additional Tests: PercentFuel )

**Received** : 13 Mar 2024
**Tested** : 14 Mar 2024
**Diagnosed** : 14 Mar 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)*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