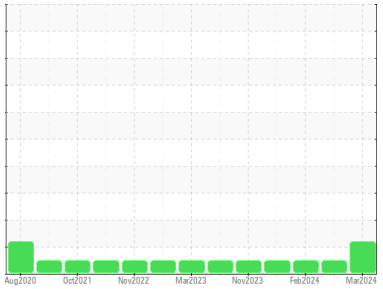
# OIL ANALYSIS REPORT

Sample Rating Trend




**GLYCOL**

Machine Id
**928065-205250**
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**
Sodium and/or potassium levels are high. Test for glycol is negative.

**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 | | **GFL0109253** | GFL0109313 | GFL0109274 |
| Sample Date | | Client Info | | **01 Mar 2024** | 20 Feb 2024 | 08 Feb 2024 |
| Machine Age | hrs | Client Info | | **32488** | 32418 | 32319 |
| Oil Age | hrs | Client Info | | **324** | 653 | 157 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **ABNORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **10** | 6 | 0 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 2 | 0 |
| Titanium | ppm | ASTM D5185m | | **17** | <1 | 16 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **2** | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | **<1** | 0 | 1 |
| Copper | ppm | ASTM D5185m | >330 | **8** | 2 | 0 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **10** | 2 | 21 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **55** | 55 | 45 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **847** | 875 | 773 |
| Calcium | ppm | ASTM D5185m | 1070 | **1094** | 1001 | 1060 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1055** | 939 | 952 |
| Zinc | ppm | ASTM D5185m | 1270 | **1221** | 1003 | 1135 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3490** | 2862 | 2959 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **5** | 4 | 0 |
| Sodium | ppm | ASTM D5185m | | **35** | 6 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | ▲ **59** | 0 | 9 |
| Glycol | % | *ASTM D2982 | | **NEG** | NEG | NEG |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.2** | 0.2 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.2** | 5.8 | 5.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.0** | 17.6 | 17.8 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.3** | 13.5 | 13.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.4** | 9.1 | 8.7 |

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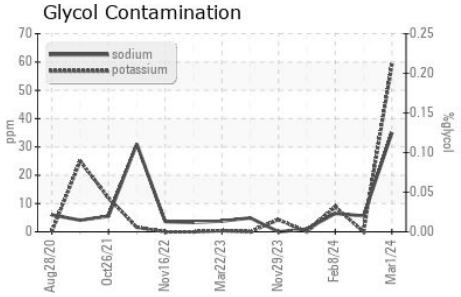
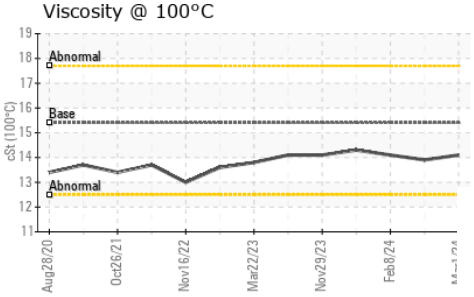
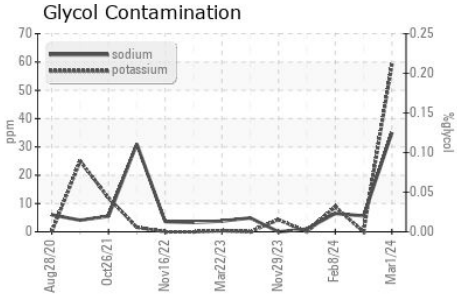
Glycol Contamination




Viscosity @ 100°C




Glycol Contamination

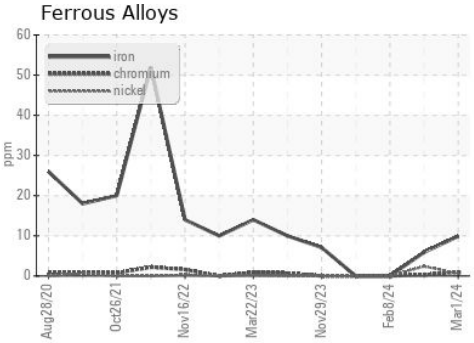



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

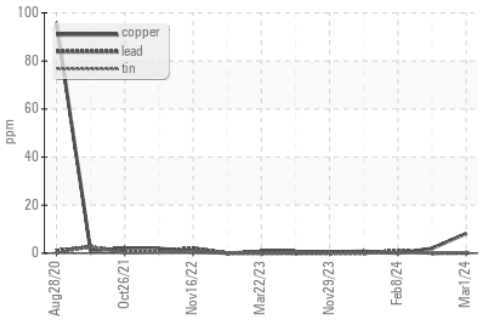
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **14.1** | 13.9 | 14.1 |

## GRAPHS

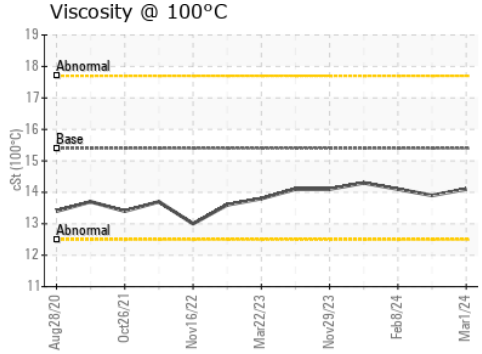
Ferrous Alloys



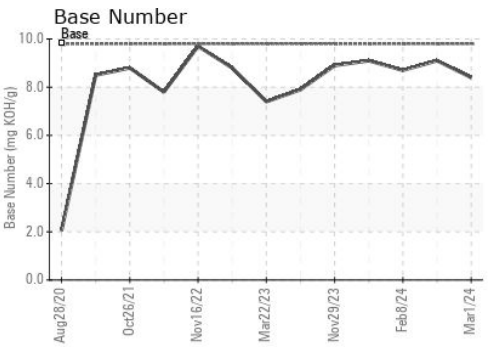

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0109253
**Lab Number** : 06107260
**Unique Number** : 10910757
**Test Package** : FLEET ( Additional Tests: Glycol )

**Received** : 04 Mar 2024
**Tested** : 06 Mar 2024
**Diagnosed** : 06 Mar 2024 - Jonathan Hester

*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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