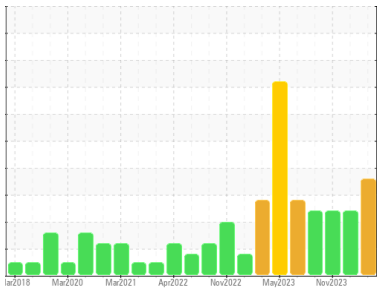
# OIL ANALYSIS REPORT

Sample Rating Trend



**FUEL**

Machine Id
**800019**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (20 LTR)**

## DIAGNOSIS

**Recommendation**
We advise that you check the fuel injection system. Check for low coolant level. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

**Wear**
All component wear rates are normal.

**Contamination**
There is a high amount of fuel present in the oil. Water treatment chemicals present, indicating slow coolant leak. Tests confirm the presence of fuel in the oil. Test for glycol is negative.

**Fluid Condition**
Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants. The condition of the oil is acceptable for the time in service (see recommendation).

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0110686** | GFL0102723 | GFL0102683 |
| Sample Date | | Client Info | | **23 Apr 2024** | 30 Jan 2024 | 20 Nov 2023 |
| Machine Age | hrs | Client Info | | **14684** | 14142 | 13662 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | Changed | N/A |
| Sample Status | | | | **SEVERE** | SEVERE | SEVERE |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >75 | **40** | 40 | 37 |
| Chromium | ppm | ASTM D5185(m) | >5 | **3** | 4 | 2 |
| Nickel | ppm | ASTM D5185(m) | >4 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >15 | **6** | 4 | 3 |
| Lead | ppm | ASTM D5185(m) | >25 | **0** | <1 | <1 |
| Copper | ppm | ASTM D5185(m) | >100 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >4 | **0** | 0 | 0 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

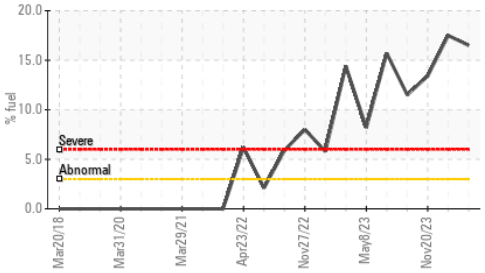
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **3** | 1 | 2 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 60 | **60** | 45 | 46 |
| Manganese | ppm | ASTM D5185(m) | 0 | **<1** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 1010 | **794** | 733 | 755 |
| Calcium | ppm | ASTM D5185(m) | 1070 | **864** | 834 | 849 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | **817** | 767 | 794 |
| Zinc | ppm | ASTM D5185(m) | 1270 | **973** | 899 | 951 |
| Sulfur | ppm | ASTM D5185(m) | 2060 | **1965** | 1956 | 1883 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **3** | 5 | 5 |
| Sodium | ppm | ASTM D5185(m) | | ● **210** | 79 | 51 |
| Potassium | ppm | ASTM D5185(m) | >20 | **9** | 6 | 5 |
| Fuel | % | ASTM D7593* | >3.0 | ▲ **16.5** | ▲ 17.5 | ▲ 13.4 |
| Glycol | % | ASTM D7922* | | **0.0** | 0.0 | NEG |

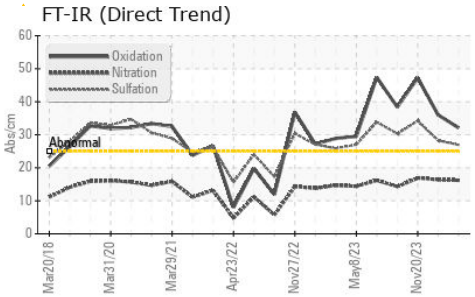
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >6 | **0.6** | 0.5 | 0.6 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **16.2** | 16.4 | 16.9 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **26.9** | 28.3 | 34.2 |

# OIL ANALYSIS REPORT

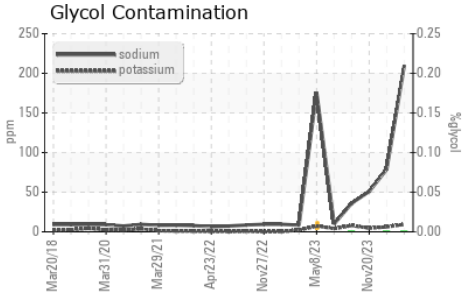
Fuel Dilution



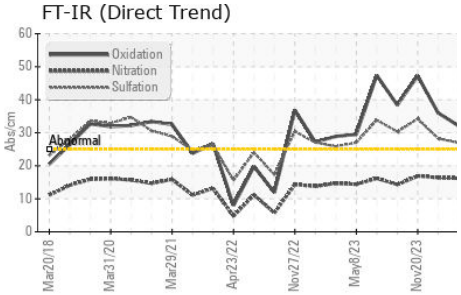

FT-IR (Direct Trend)




Glycol Contamination




FT-IR (Direct Trend)



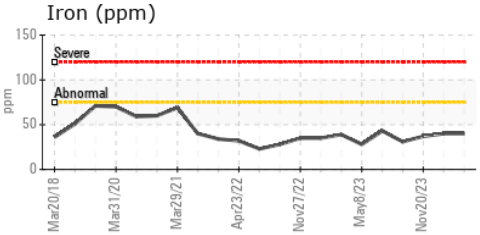

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **32.1** | 36.0 | 47.2 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | Visual* | NONE | **VLITE** | --- | --- |
| Yellow Metal | scalar | Visual* | NONE | **NONE** | --- | --- |
| Precipitate | scalar | Visual* | NONE | **NONE** | --- | --- |
| Silt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Debris | scalar | Visual* | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | Visual* | NONE | **NONE** | --- | --- |
| Appearance | scalar | Visual* | 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 |

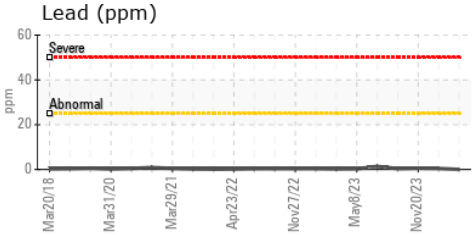
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.4 | ▲ **11.3** | ▲ 10.8 | ▲ 11.2 |

## GRAPHS

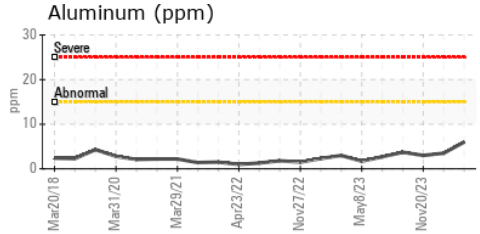
Iron (ppm)



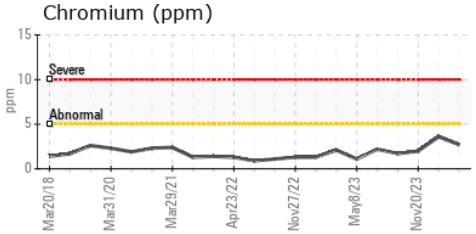

Lead (ppm)



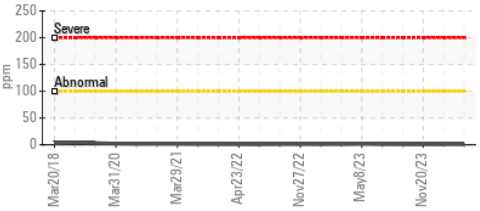

Aluminum (ppm)



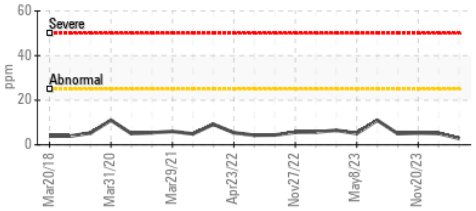

Chromium (ppm)



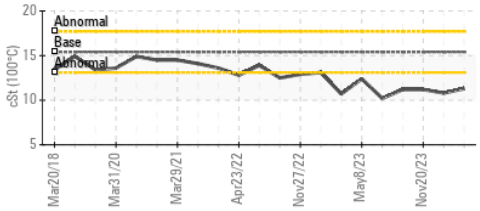

Copper (ppm)



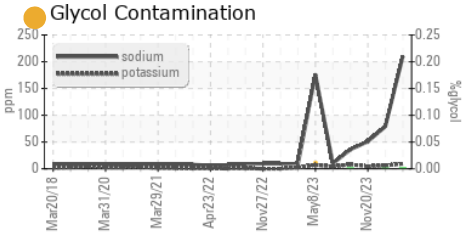

Silicon (ppm)




Viscosity @ 100°C




Glycol Contamination




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : GFL0110686
**Lab Number** : 02631503
**Unique Number** : 5772656
**Test Package** : MOB 1 ( Additional Tests: Glycol, PercentFuel, Visual )

**Received** : 26 Apr 2024
**Tested** : 29 Apr 2024
**Diagnosed** : 29 Apr 2024 - Kevin Marson

*To discuss this sample report, contact Customer Service at 1-800-268-2131.*
*Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.*
*Validity of results and interpretation are based on the sample and information as supplied.*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