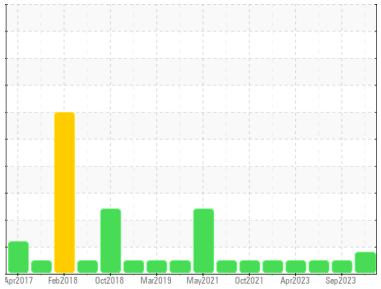
# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
**9131**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- GAL)**

## DIAGNOSIS

**Recommendation**
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**
Chromium ppm levels are abnormal. Ring wear is indicated.

**Contamination**
There is no indication of any contamination in the oil.

**Fluid Condition**
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0102669** | GFL0093915 | GFL0085930 |
| Sample Date | | Client Info | | **05 Mar 2024** | 21 Sep 2023 | 07 Jul 2023 |
| Machine Age | kms | Client Info | | **0** | 0 | 734012 |
| Oil Age | kms | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| 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 |
| Glycol | | WC Method | | **NEG** | NEG | 0.0 |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >110 | **61** | 51 | 48 |
| Chromium | ppm | ASTM D5185(m) | >4 | ▲ **4** | 2 | 2 |
| Nickel | ppm | ASTM D5185(m) | >2 | **1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >25 | **8** | 8 | 15 |
| Lead | ppm | ASTM D5185(m) | >45 | **<1** | <1 | 1 |
| Copper | ppm | ASTM D5185(m) | >85 | **3** | 5 | 10 |
| Tin | ppm | ASTM D5185(m) | >4 | **<1** | <1 | <1 |
| Antimony | ppm | ASTM D5185(m) | | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Beryllium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |

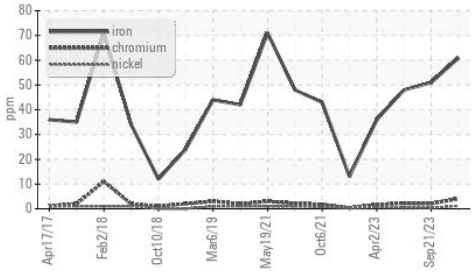
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 2 | **2** | 1 | 3 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 50 | **58** | 58 | 58 |
| Manganese | ppm | ASTM D5185(m) | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185(m) | 950 | **930** | 961 | 925 |
| Calcium | ppm | ASTM D5185(m) | 1050 | **1036** | 1046 | 971 |
| Phosphorus | ppm | ASTM D5185(m) | 995 | **950** | 975 | 953 |
| Zinc | ppm | ASTM D5185(m) | 1180 | **1124** | 1171 | 1107 |
| Sulfur | ppm | ASTM D5185(m) | 2600 | **2448** | 2343 | 2194 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >30 | **16** | 9 | 10 |
| Sodium | ppm | ASTM D5185(m) | | **10** | 9 | 8 |
| Potassium | ppm | ASTM D5185(m) | >20 | **3** | 0 | 9 |

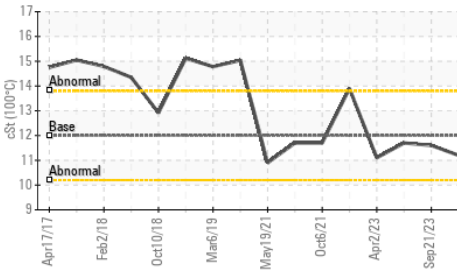
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **1.8** | 1.1 | 1.2 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **11.8** | 11.9 | 11.0 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **24.4** | 25.4 | 23.6 |

# OIL ANALYSIS REPORT

Ferrous Alloys




Viscosity @ 100°C



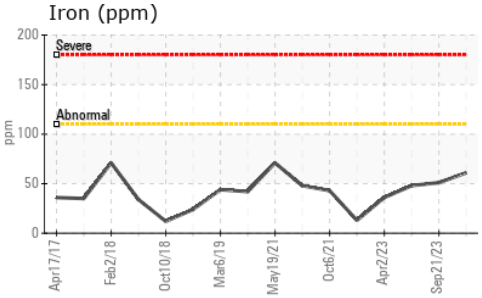

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **18.9** | 23.6 | 20.3 |

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Emulsified Water | scalar | Visual* | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | Visual* | | **NEG** | NEG | NEG |

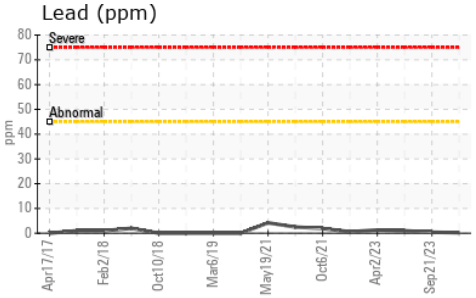
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 12.00 | **11.2** | 11.6 | 11.7 |

## GRAPHS

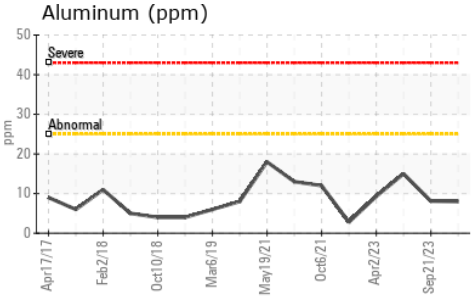
Iron (ppm)



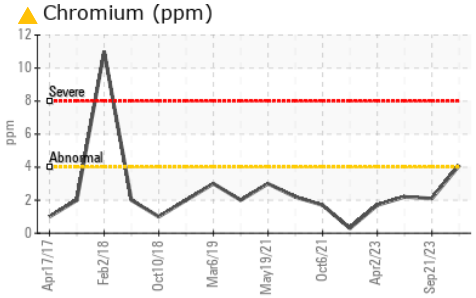

Lead (ppm)



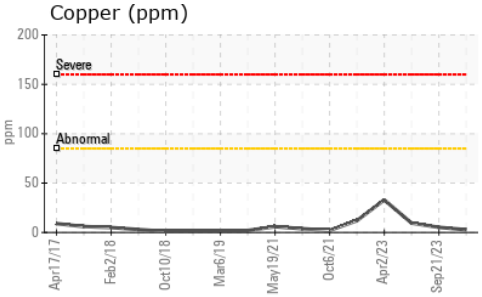

Aluminum (ppm)



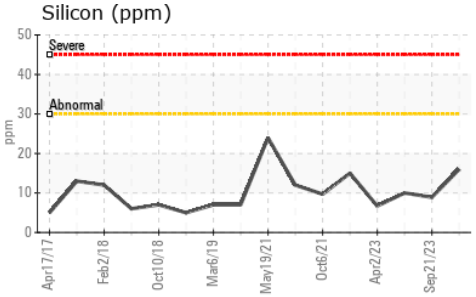

Chromium (ppm)



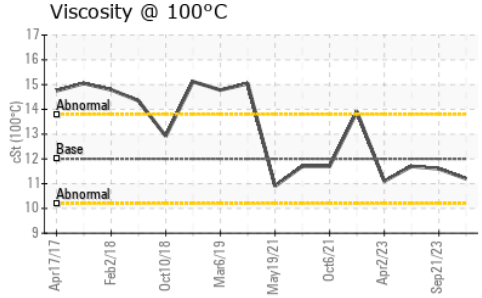

Copper (ppm)



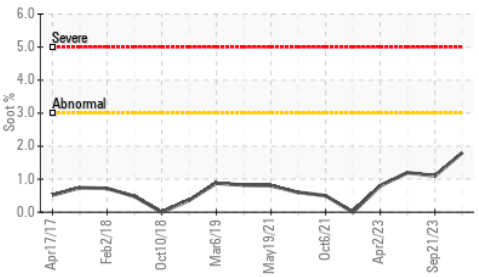

Silicon (ppm)




Viscosity @ 100°C




Soot %




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : GFL0102669
**Lab Number** : 02620083
**Unique Number** : 5737193
**Test Package** : MOB 1

**Received** : 06 Mar 2024
**Tested** : 06 Mar 2024
**Diagnosed** : 06 Mar 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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