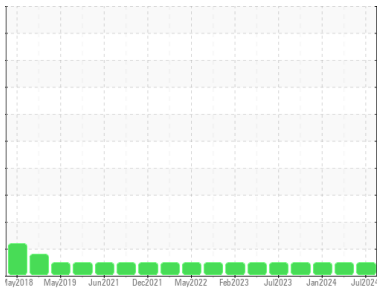
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**201072**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON XL SYN BLEND 15W40 (--- 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 | | **GFL0128169** | GFL0117329 | GFL0099558 |
| Sample Date | | Client Info | | **09 Jul 2024** | 03 Apr 2024 | 09 Jan 2024 |
| Machine Age | kms | Client Info | | **210743** | 201922 | 11807 |
| Oil Age | kms | Client Info | | **0** | 0 | 515 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | 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 | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185(m) | >80 | **20** | 34 | 17 |
| Chromium | ppm | ASTM D5185(m) | >5 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >2 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >30 | **2** | 4 | 3 |
| Lead | ppm | ASTM D5185(m) | >30 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185(m) | >150 | **<1** | <1 | <1 |
| Tin | ppm | ASTM D5185(m) | >5 | **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 |

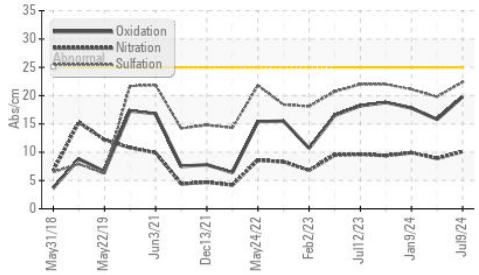
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 1 | **10** | 3 | 3 |
| Barium | ppm | ASTM D5185(m) | 1 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185(m) | 60 | **58** | 57 | 55 |
| Manganese | ppm | ASTM D5185(m) | 1 | **<1** | <1 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 1010 | **877** | 937 | 896 |
| Calcium | ppm | ASTM D5185(m) | 1070 | **1000** | 1024 | 1030 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | **1078** | 976 | 974 |
| Zinc | ppm | ASTM D5185(m) | 1270 | **1129** | 1157 | 1129 |
| Sulfur | ppm | ASTM D5185(m) | 2060 | **2473** | 2441 | 2498 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >20 | **6** | 6 | 7 |
| Sodium | ppm | ASTM D5185(m) | | **2** | <1 | 1 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | <1 | <1 |

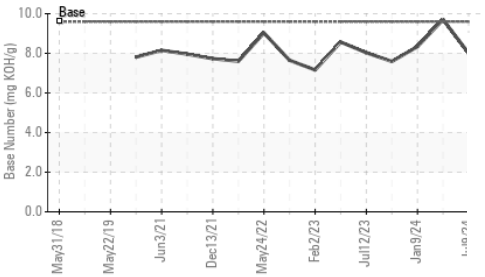
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **1** | 0.6 | 0.8 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **10.1** | 8.9 | 9.9 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **22.4** | 19.8 | 21.1 |

# OIL ANALYSIS REPORT

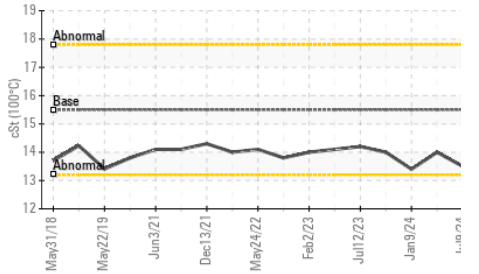
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C



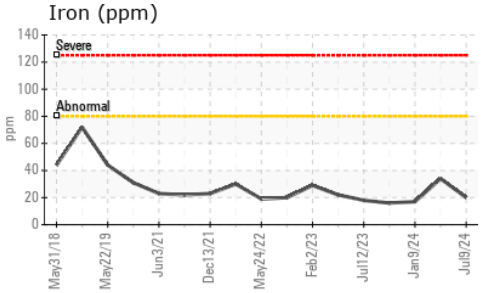

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **19.8** | 15.8 | 17.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896* | 9.6 | **8.01** | 9.70 | 8.34 |

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

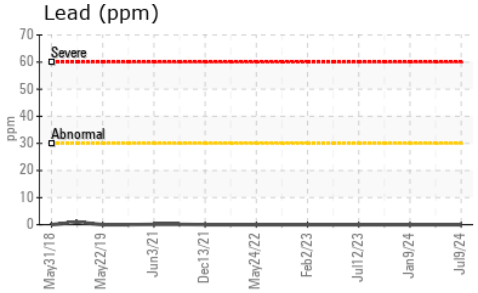
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.5 | **13.5** | 14.0 | 13.4 |

## GRAPHS

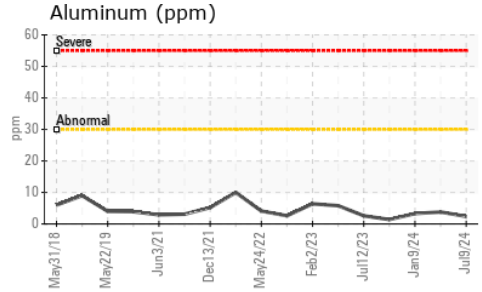
Iron (ppm)



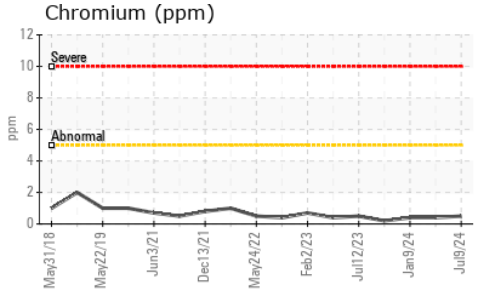

Lead (ppm)



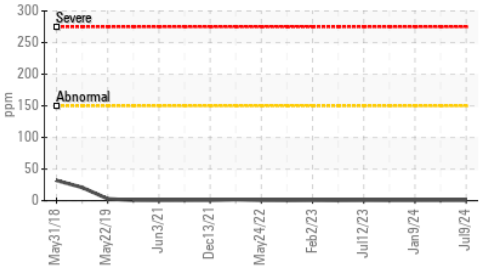

Aluminum (ppm)



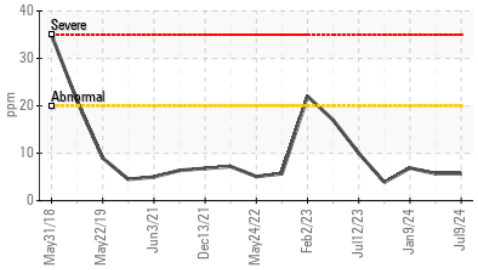

Chromium (ppm)



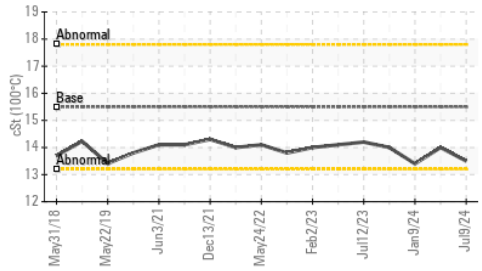

Copper (ppm)



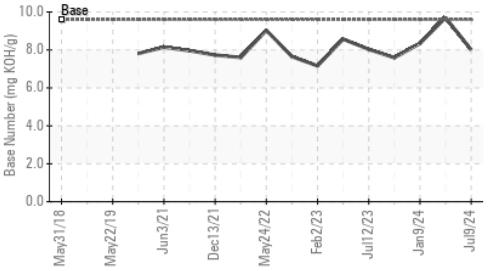

Silicon (ppm)




Viscosity @ 100°C




Base Number




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : GFL0128169
**Lab Number** : 02648039
**Unique Number** : 5813591
**Test Package** : MOB 2

**Received** : 16 Jul 2024
**Tested** : 17 Jul 2024
**Diagnosed** : 17 Jul 2024 - Wes Davis

*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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