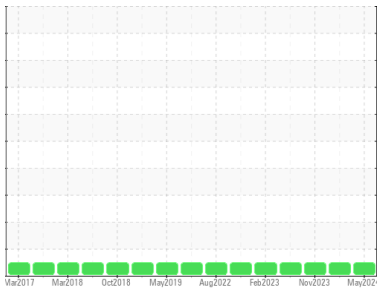
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**4516**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- LTR)**

## 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 condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0118964** | GFL0102665 | GFL0097637 |
| Sample Date | | Client Info | | **05 May 2024** | 02 Mar 2024 | 16 Nov 2023 |
| Machine Age | hrs | Client Info | | **12559** | 12502 | 22176 |
| Oil Age | hrs | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | 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) | >100 | **7** | 32 | 29 |
| Chromium | ppm | ASTM D5185(m) | >20 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185(m) | >4 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185(m) | | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **1** | 2 | 1 |
| Lead | ppm | ASTM D5185(m) | >40 | **0** | 3 | 3 |
| Copper | ppm | ASTM D5185(m) | >330 | **2** | 9 | 12 |
| Tin | ppm | ASTM D5185(m) | >15 | **0** | <1 | <1 |
| 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 |

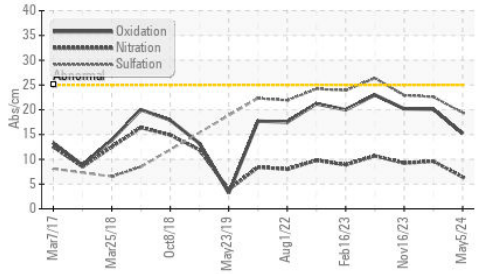
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 2 | **4** | 7 | 4 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 50 | **58** | 61 | 61 |
| Manganese | ppm | ASTM D5185(m) | 0 | **0** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 950 | **975** | 981 | 987 |
| Calcium | ppm | ASTM D5185(m) | 1050 | **1063** | 1092 | 1079 |
| Phosphorus | ppm | ASTM D5185(m) | 995 | **1014** | 1018 | 1020 |
| Zinc | ppm | ASTM D5185(m) | 1180 | **1186** | 1218 | 1221 |
| Sulfur | ppm | ASTM D5185(m) | 2600 | **2646** | 2684 | 2537 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **2** | 5 | 3 |
| Sodium | ppm | ASTM D5185(m) | | **2** | 3 | 3 |
| Potassium | ppm | ASTM D5185(m) | >20 | **<1** | 1 | 0 |

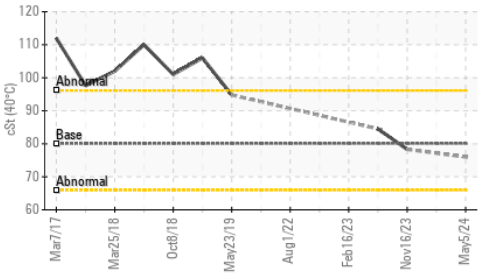
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >3 | **0** | 0.3 | 0.4 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **6.4** | 9.6 | 9.2 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **19.4** | 22.6 | 22.9 |

# OIL ANALYSIS REPORT

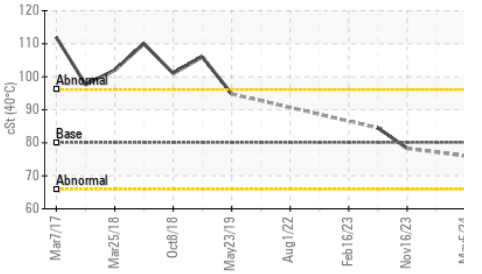
FT-IR (Direct Trend)




Viscosity @ 40°C




Viscosity @ 40°C



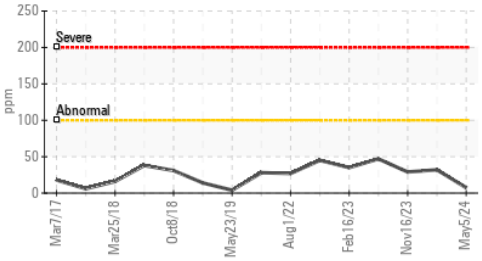

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **15.2** | 20.1 | 20.2 |

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

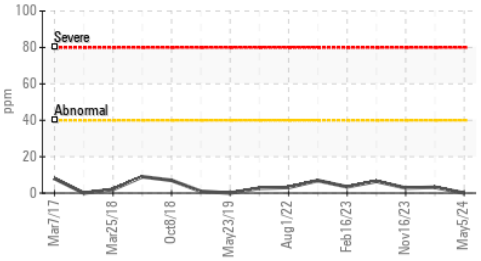
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D7279(m) | 80.1 | **76.0** | --- | 78.3 |
| Visc @ 100°C | cSt | ASTM D7279(m) | 12.00 | **11.6** | 11.9 | 11.8 |
| Viscosity Index (VI) | Scale | ASTM D2270* | 144 | **145** | --- | 144 |

## GRAPHS

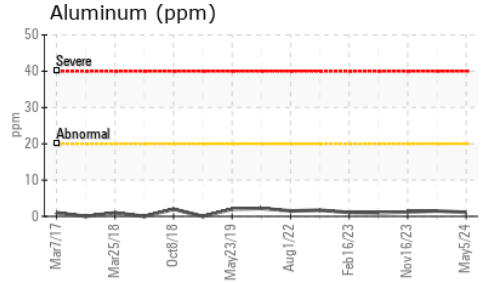
Iron (ppm)



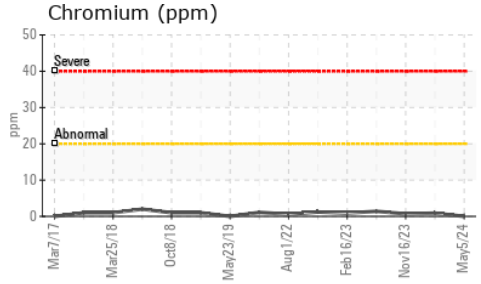

Lead (ppm)



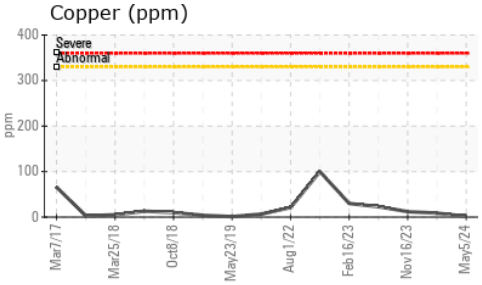

Aluminum (ppm)



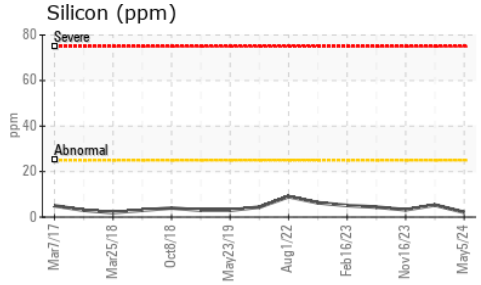

Chromium (ppm)



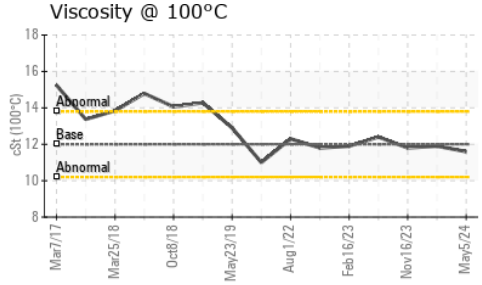

Copper (ppm)



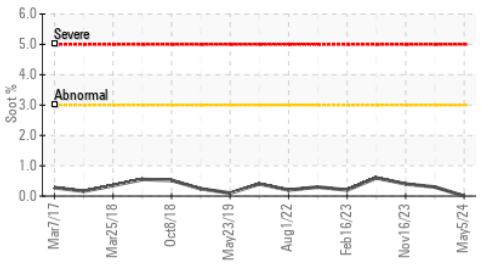

Silicon (ppm)




Viscosity @ 100°C




Soot %




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : GFL0118964
**Lab Number** : 02634035
**Unique Number** : 5775188
**Test Package** : MOB 1 ( Additional Tests: KV40, VI )

**Received** : 08 May 2024
**Tested** : 08 May 2024
**Diagnosed** : 08 May 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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