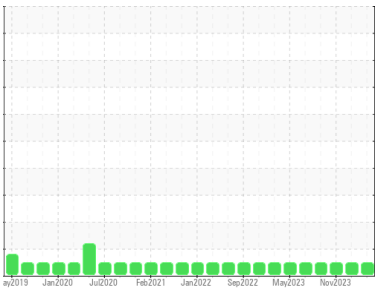
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**401213**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (36 LTR)**

## DIAGNOSIS

**Recommendation**
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor. No other corrective action is recommended at this time.

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

**Contamination**
Light fuel dilution occurring. No other contaminants were detected 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 | | **GFL0126247** | GFL0097570 | GFL0097528 |
| Sample Date | | Client Info | | **14 Jul 2024** | 03 Feb 2024 | 30 Nov 2023 |
| Machine Age | hrs | Client Info | | **16186** | 15002 | 14405 |
| Oil Age | hrs | Client Info | | **594** | 597 | 568 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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) | >120 | **9** | 6 | 7 |
| Chromium | ppm | ASTM D5185(m) | >20 | **<1** | 0 | 0 |
| Nickel | ppm | ASTM D5185(m) | >5 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Silver | ppm | ASTM D5185(m) | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185(m) | >20 | **2** | 2 | 1 |
| Lead | ppm | ASTM D5185(m) | >40 | **2** | <1 | 1 |
| Copper | ppm | ASTM D5185(m) | >330 | **2** | 1 | 1 |
| Tin | ppm | ASTM D5185(m) | >15 | **<1** | <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 |

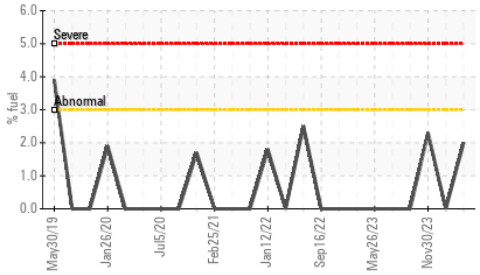
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185(m) | 0 | **3** | 3 | 4 |
| Barium | ppm | ASTM D5185(m) | 0 | **0** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185(m) | 60 | **57** | 57 | 57 |
| Manganese | ppm | ASTM D5185(m) | 0 | **<1** | 0 | 0 |
| Magnesium | ppm | ASTM D5185(m) | 1010 | **913** | 939 | 913 |
| Calcium | ppm | ASTM D5185(m) | 1070 | **1033** | 1062 | 1020 |
| Phosphorus | ppm | ASTM D5185(m) | 1150 | **1126** | 984 | 944 |
| Zinc | ppm | ASTM D5185(m) | 1270 | **1194** | 1165 | 1140 |
| Sulfur | ppm | ASTM D5185(m) | 2060 | **2498** | 2593 | 2302 |
| Lithium | ppm | ASTM D5185(m) | | **<1** | <1 | <1 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185(m) | >25 | **3** | 3 | 3 |
| Sodium | ppm | ASTM D5185(m) | | **4** | 3 | 4 |
| Potassium | ppm | ASTM D5185(m) | >20 | **3** | 1 | <1 |
| Fuel | % | ASTM D7593* | >3.0 | **2** | <1.0 | 2.3 |

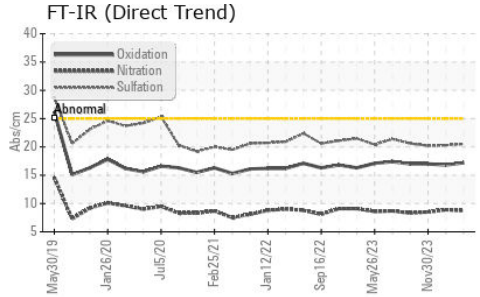
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | ASTM D7844* | >4 | **0.4** | 0.3 | 0.3 |
| Nitration | Abs/cm | ASTM D7624* | >20 | **8.7** | 8.9 | 8.5 |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | **20.5** | 20.3 | 20.2 |

# OIL ANALYSIS REPORT

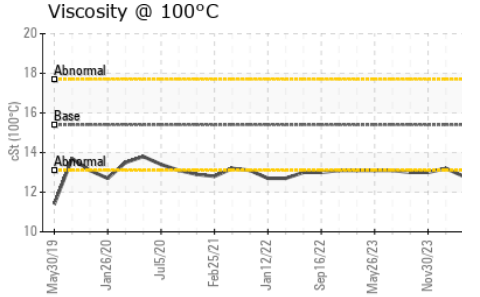
Fuel Dilution




FT-IR (Direct Trend)




Viscosity @ 100°C



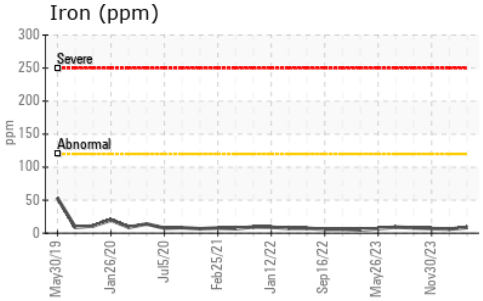

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | ASTM D7414* | >25 | **17.2** | 16.8 | 17.0 |

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

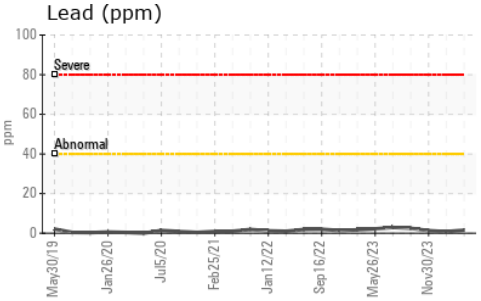
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D7279(m) | 15.4 | **12.8** | 13.2 | 13.0 |

## GRAPHS

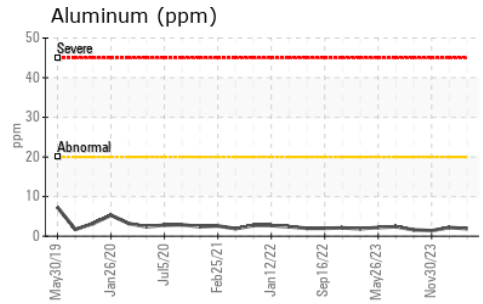
Iron (ppm)



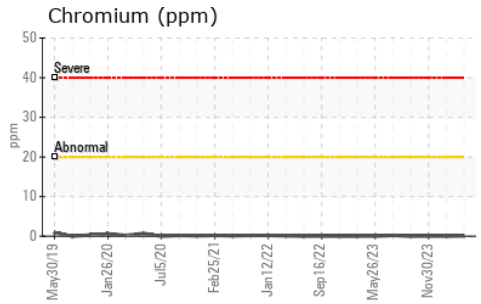

Lead (ppm)



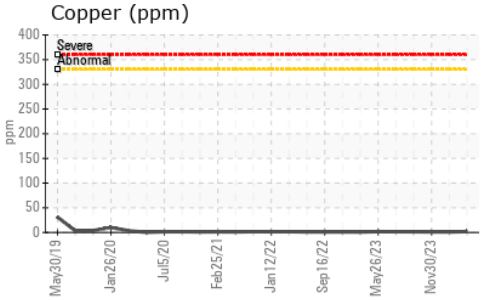

Aluminum (ppm)



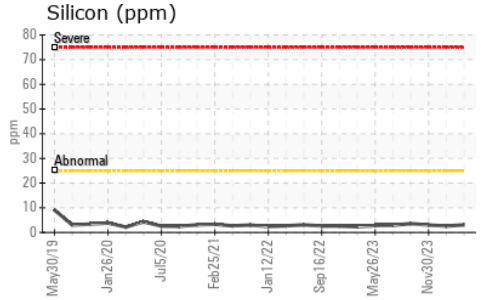

Chromium (ppm)



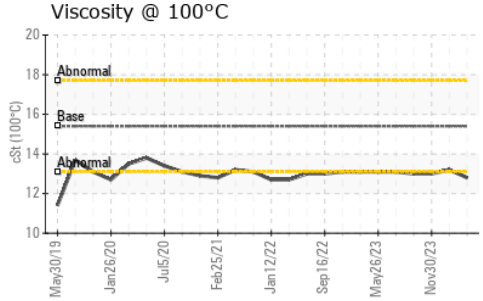

Copper (ppm)



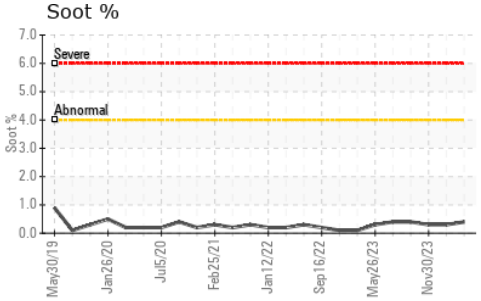

Silicon (ppm)




Viscosity @ 100°C




Soot %




ISO 17025:2017 Accredited Laboratory

**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
**Sample No.** : GFL0126247 **Received** : 16 Jul 2024
**Lab Number** : 02648063 **Tested** : 17 Jul 2024
**Unique Number** : 5813615 **Diagnosed** : 17 Jul 2024 - Wes Davis
**Test Package** : MOB 1 ( Additional Tests: FuelDilution, PercentFuel )

*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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