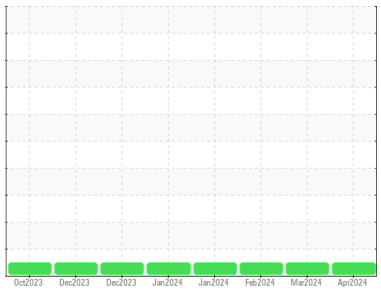
# OIL ANALYSIS REPORT

Sample Rating Trend




**NORMAL**

Area
**{UNASSIGNED}**
Machine Id
**834092**
Component
**Natural Gas Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (8 GAL)**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor.

**Wear**
Metal levels are typical for a new component breaking in.

**Contamination**
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. 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 | | **GFL0115674** | GFL0115746 | GFL0112313 |
| Sample Date | | Client Info | | **16 Apr 2024** | 22 Mar 2024 | 09 Feb 2024 |
| Machine Age | hrs | Client Info | | **1153** | 1021 | 873 |
| Oil Age | hrs | Client Info | | **558** | 426 | 278 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **27** | 23 | 18 |
| Chromium | ppm | ASTM D5185m | >4 | **3** | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **67** | 47 | 26 |
| Lead | ppm | ASTM D5185m | >30 | **<1** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >35 | **0** | 3 | 3 |
| Tin | ppm | ASTM D5185m | >4 | **1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **3** | 3 | 1 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **67** | 65 | 65 |
| Manganese | ppm | ASTM D5185m | 0 | **2** | 2 | 1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **912** | 968 | 882 |
| Calcium | ppm | ASTM D5185m | 1070 | **1116** | 1175 | 1062 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **962** | 1001 | 919 |
| Zinc | ppm | ASTM D5185m | 1270 | **1212** | 1213 | 1157 |
| Sulfur | ppm | ASTM D5185m | 2060 | **3133** | 3460 | 2879 |

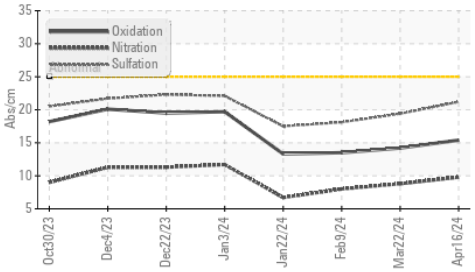
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **9** | 8 | 7 |
| Sodium | ppm | ASTM D5185m | | **4** | 5 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **164** | 112 | 76 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.8** | 8.8 | 8.0 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.2** | 19.4 | 18.1 |

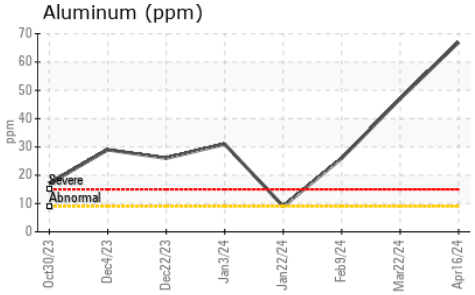
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.4** | 14.2 | 13.5 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **3.8** | 5.4 | 6.0 |

# OIL ANALYSIS REPORT

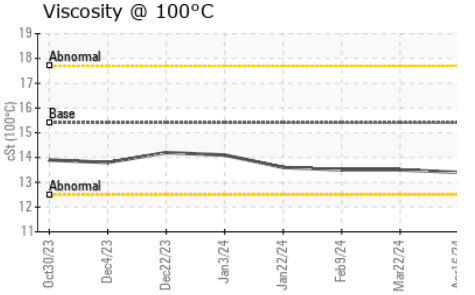
FT-IR (Direct Trend)



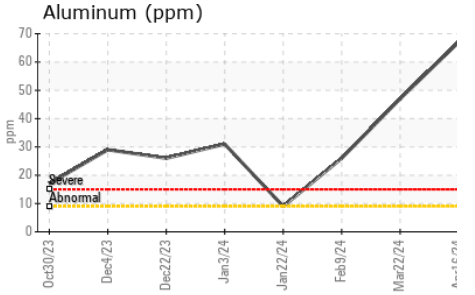

Aluminum (ppm)




Viscosity @ 100°C




Aluminum (ppm)

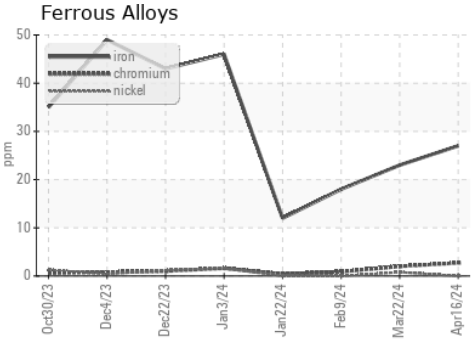



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

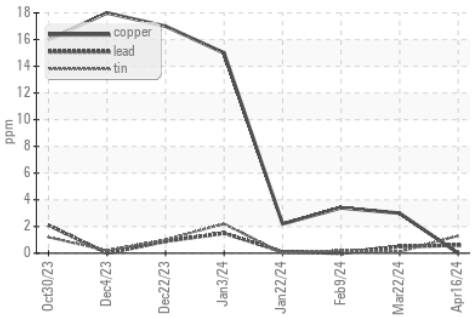
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.4** | 13.5 | 13.5 |

## GRAPHS

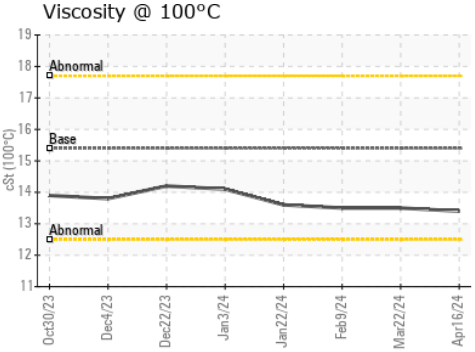
Ferrous Alloys



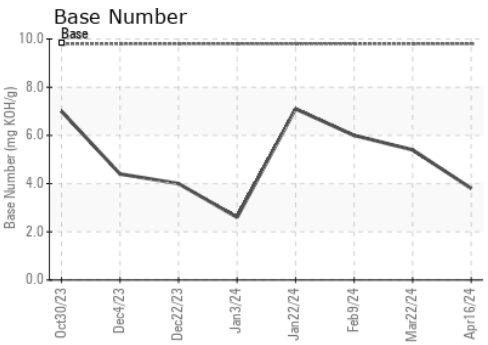

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0115674
**Lab Number** : 06151491
**Unique Number** : 10981569
**Test Package** : FLEET

**Received** : 17 Apr 2024
**Tested** : 18 Apr 2024
**Diagnosed** : 18 Apr 2024 - Wes Davis

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
** - Denotes test methods that are outside of the ISO 17025 scope of accreditation.*
*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*

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