# PROBLEM SUMMARY

Sample Rating Trend


**WEAR**

Machine Id
**221025**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## COMPONENT CONDITION SUMMARY


## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | --- | --- |
| Copper | ppm | ASTM D5185m | >85 | ▲ **250** | --- | --- |

**Customer Id:** GFL846
**Sample No.:** GFL0101122
**Lab Number:** 06008032
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
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*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Change Fluid | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |
| Change Filter | --- | --- | ? | Oil and filter change at the time of sampling has been noted. |

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend


**WEAR**

Machine Id
**221025**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other metal levels are typical for a new component breaking in.

**Contamination**

Fuel content negligible. There is no indication of any contamination in the oil.

**Fluid Condition**

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0101122** | --- | --- |
| Sample Date | | Client Info | | **09 Nov 2023** | --- | --- |
| Machine Age | hrs | Client Info | | **600** | --- | --- |
| Oil Age | hrs | Client Info | | **600** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >110 | **10** | --- | --- |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >25 | **2** | --- | --- |
| Lead | ppm | ASTM D5185m | >45 | **4** | --- | --- |
| Copper | ppm | ASTM D5185m | >85 | ▲ **250** | --- | --- |
| Tin | ppm | ASTM D5185m | >4 | **<1** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **<1** | --- | --- |

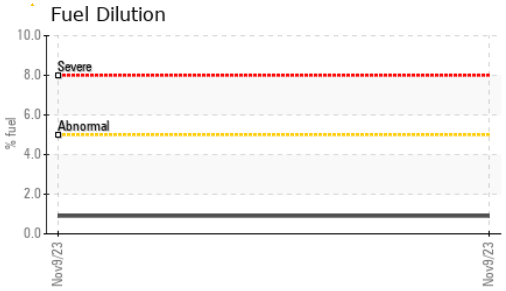
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **47** | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 60 | **62** | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | 1010 | **282** | --- | --- |
| Calcium | ppm | ASTM D5185m | 1070 | **1648** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **890** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1270 | **1103** | --- | --- |
| Sulfur | ppm | ASTM D5185m | 2060 | **3018** | --- | --- |

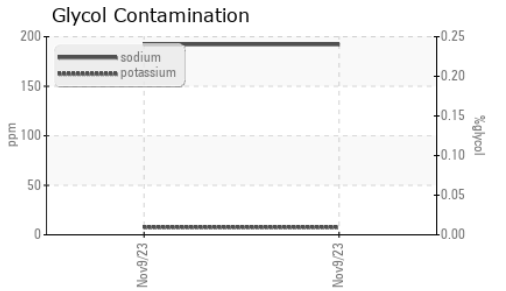
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **7** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **192** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **8** | --- | --- |
| Fuel | % | ASTM D3524 | >5 | **0.9** | --- | --- |
| Glycol | % | *ASTM D2982 | | **NEG** | --- | --- |

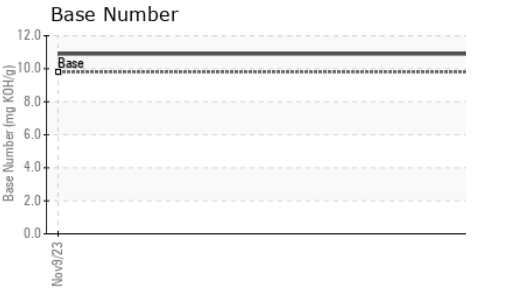
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.2** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.7** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **16.5** | --- | --- |

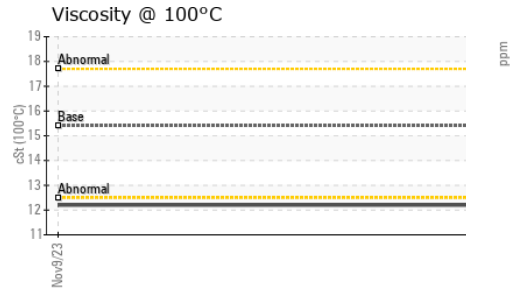
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **11.0** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **10.9** | --- | --- |

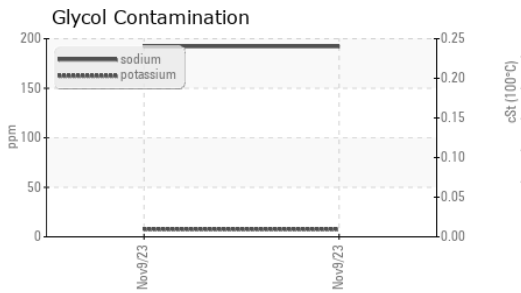
# OIL ANALYSIS REPORT



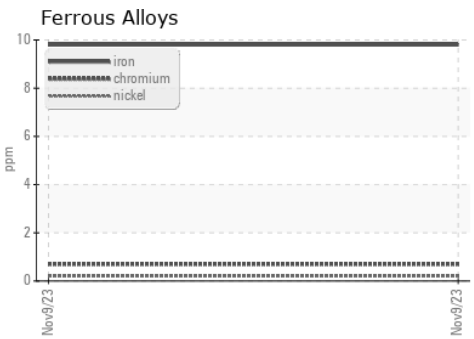



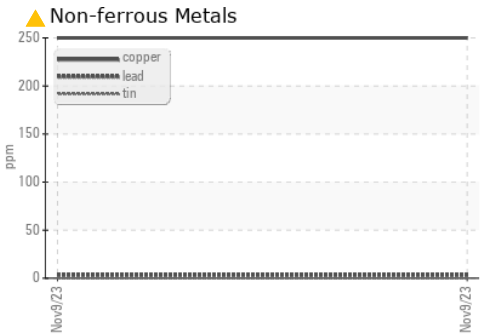



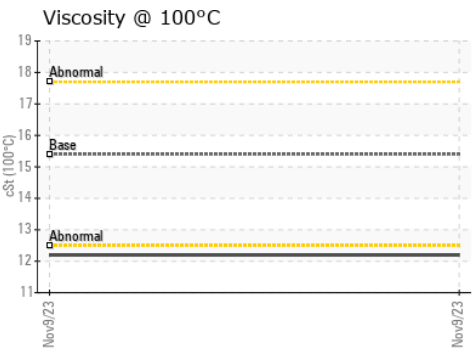

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Debris | scalar | *Visual | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | --- | --- |
| Odor | scalar | *Visual | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | *Visual | | **NEG** | --- | --- |

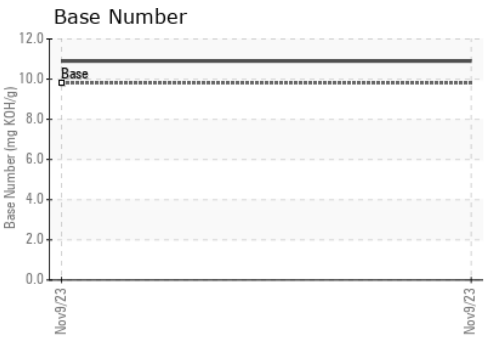
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **12.2** | --- | --- |

## GRAPHS




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0101122 **Received** : 15 Nov 2023
**Lab Number** : 06008032 **Diagnosed** : 17 Nov 2023
**Unique Number** : 10741794 **Diagnostician** : Sean Felton
**Test Package** : FLEET ( Additional Tests: FuelDilution, Glycol, PercentFuel )

*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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