# PROBLEM SUMMARY

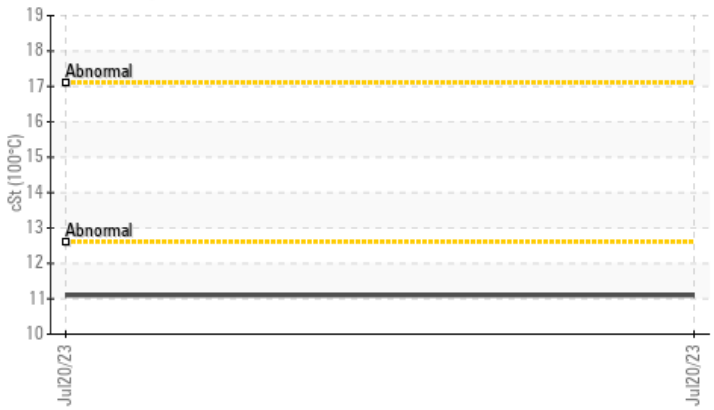
Sample Rating Trend


**FUEL**

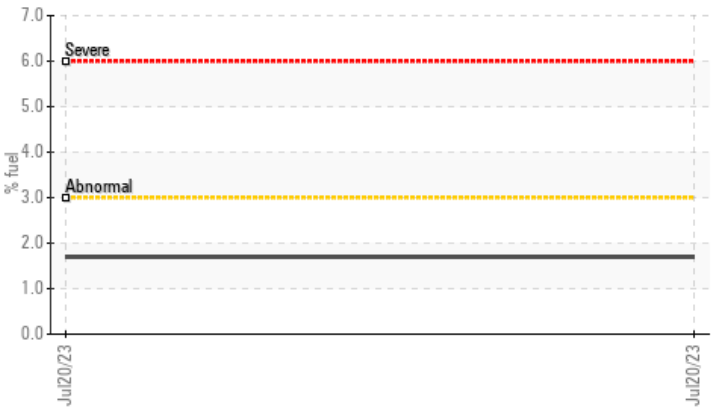
Area
**{UNASSIGNED}**
Machine Id
**210027**
Component
**Diesel Engine**
Fluid
**PETRO CANADA 15W40 (8 GAL)**

## COMPONENT CONDITION SUMMARY

▲ Viscosity @ 100°C




▲ Fuel Dilution




## RECOMMENDATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

## PROBLEMATIC TEST RESULTS

| | | | | | | |
|---|---|---|---|---|---|---|
| Sample Status | | | | **ABNORMAL** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | ▲ **4045** | --- | --- |
| Fuel | % | ASTM D3524 | >3.0 | ▲ **1.7** | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | | ▲ **11.1** | --- | --- |

**Customer Id:** GFL018
**Sample No.:** GFL0080546
**Lab Number:** 05904176
**Test Package:** FLEET

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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

## RECOMMENDED ACTIONS

*There are no recommended actions for this sample.*

## HISTORICAL DIAGNOSIS

# OIL ANALYSIS REPORT

Sample Rating Trend


**FUEL**

Area
**{UNASSIGNED}**
Machine Id
**210027**
Component
**Diesel Engine**
Fluid
**PETRO CANADA 15W40 (8 GAL)**

## DIAGNOSIS

**Recommendation**
The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

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

**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. Light fuel dilution occurring.

**Fluid Condition**
Sulfur ppm levels are abnormally high. Visc @ 100°C is abnormally low. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0080546** | --- | --- |
| Sample Date | | Client Info | | **20 Jul 2023** | --- | --- |
| Machine Age | hrs | Client Info | | **0** | --- | --- |
| Oil Age | hrs | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >130 | **63** | --- | --- |
| Chromium | ppm | ASTM D5185m | >10 | **1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | **0** | --- | --- |
| Titanium | ppm | ASTM D5185m | >2 | **0** | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **16** | --- | --- |
| Lead | ppm | ASTM D5185m | >20 | **0** | --- | --- |
| Copper | ppm | ASTM D5185m | >125 | **2** | --- | --- |
| Tin | ppm | ASTM D5185m | >4 | **0** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **24** | --- | --- |
| Barium | ppm | ASTM D5185m | | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | **63** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | | **439** | --- | --- |
| Calcium | ppm | ASTM D5185m | | **1981** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | **1005** | --- | --- |
| Zinc | ppm | ASTM D5185m | | **1290** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | ▲ **4045** | --- | --- |

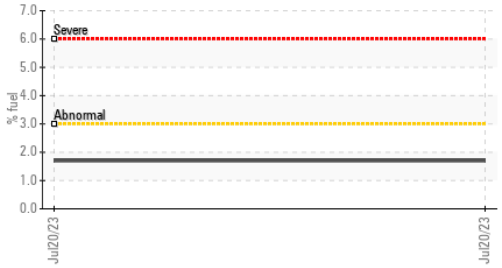
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **10** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **2** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **19** | --- | --- |
| Fuel | % | ASTM D3524 | >3.0 | ▲ **1.7** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **0.6** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.9** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.5** | --- | --- |

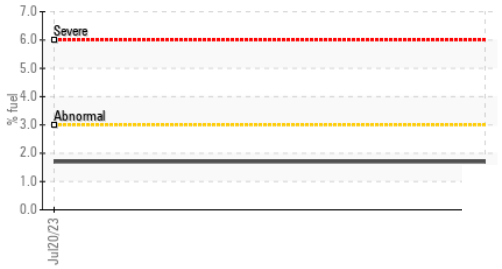
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.9** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.7** | --- | --- |

# OIL ANALYSIS REPORT

Fuel Dilution




Fuel Dilution



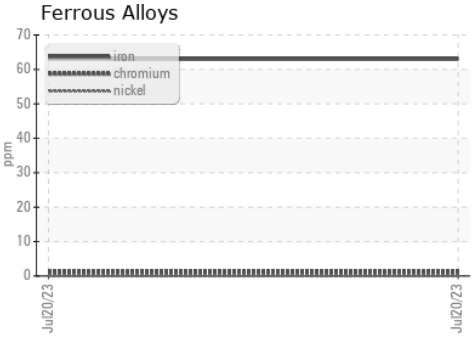

Base Number


| 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** | --- | --- |

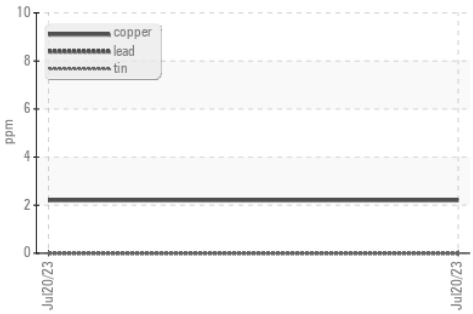
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | ▲ **11.1** | --- | --- |

## GRAPHS

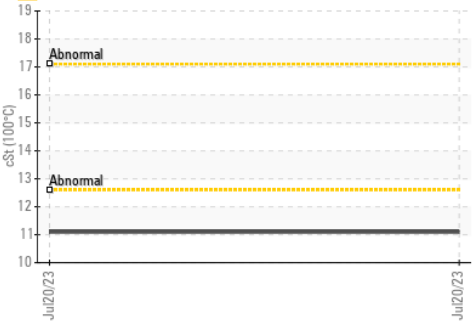
Ferrous Alloys



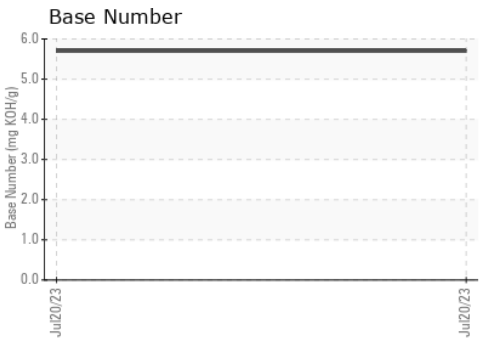

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0080546 **Received** : 21 Jul 2023
**Lab Number** : 05904176 **Diagnosed** : 24 Jul 2023
**Unique Number** : 10565532 **Diagnostician** : Wes Davis
**Test Package** : FLEET ( Additional Tests: FuelDilution, 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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