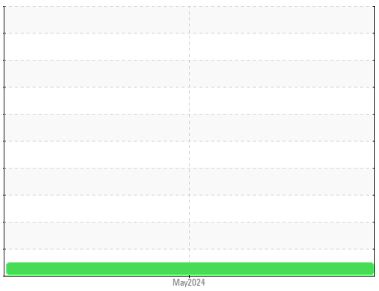
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
## NWW GREENWOOD
Machine Id
## DT878
Component
**Diesel Engine**
Fluid
**PETRO CANADA 10W30 (38 QTS)**

## 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 | | **PCA0102385** | --- | --- |
| Sample Date | | Client Info | | **08 May 2024** | --- | --- |
| Machine Age | mls | Client Info | | **30752** | --- | --- |
| Oil Age | mls | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **NORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | --- | --- |
| Water | | WC Method | >0.2 | **NEG** | --- | --- |
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **59** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **2** | --- | --- |
| Nickel | ppm | ASTM D5185m | >5 | **3** | --- | --- |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | --- | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **22** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **<1** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | **102** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **4** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **40** | --- | --- |
| Barium | ppm | ASTM D5185m | | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | **120** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **6** | --- | --- |
| Magnesium | ppm | ASTM D5185m | | **765** | --- | --- |
| Calcium | ppm | ASTM D5185m | | **1485** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | **772** | --- | --- |
| Zinc | ppm | ASTM D5185m | | **888** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | **2487** | --- | --- |

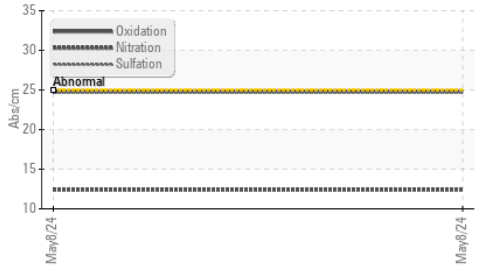
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **50** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **5** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **67** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.8** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **12.4** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **24.7** | --- | --- |

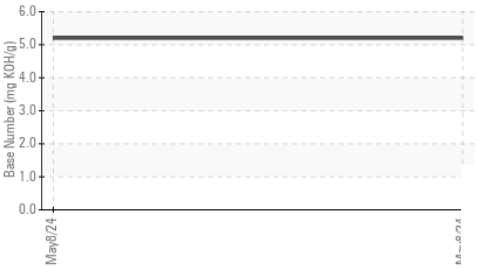
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **24.8** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.2** | --- | --- |

# OIL ANALYSIS REPORT

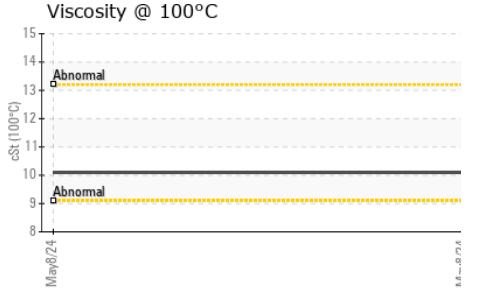
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

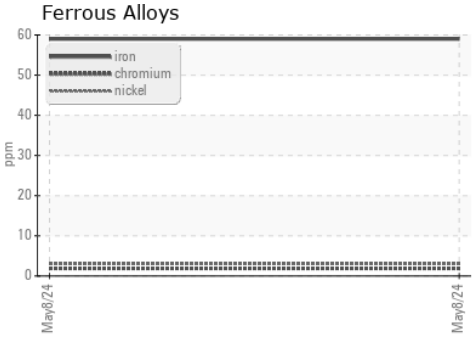



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | 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** | --- | --- |

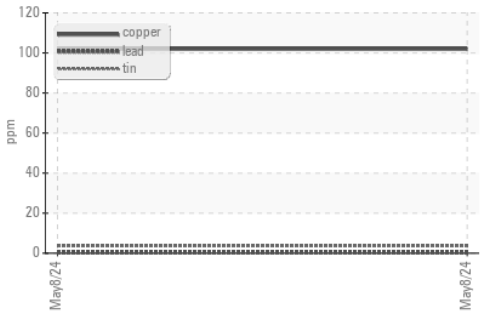
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **10.1** | --- | --- |

## GRAPHS

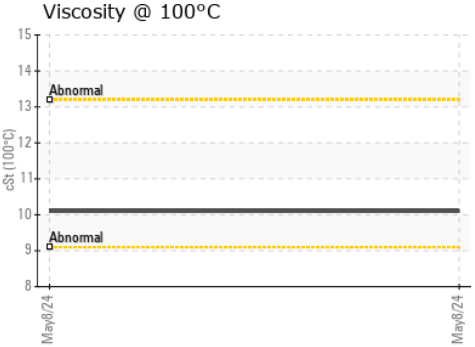
Ferrous Alloys



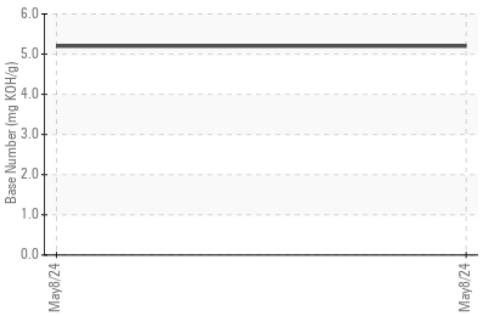

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0102385
**Lab Number** : 06175299
**Unique Number** : 11021352
**Test Package** : FLEET

**Received** : 10 May 2024
**Tested** : 13 May 2024
**Diagnosed** : 13 May 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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