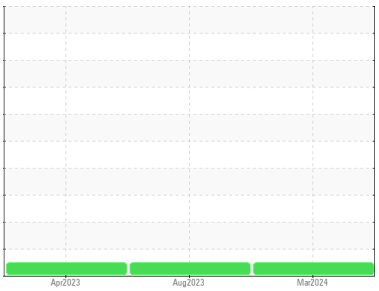
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
## (50962Z) Walgreens - Tractor
Machine Id
## [Walgreens - Tractor] 136A63322
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (11 GAL)**

## DIAGNOSIS

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

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

**Contamination**
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 | | **PCA0106549** | PCA0094987 | PCA0094969 |
| Sample Date | | Client Info | | **21 Mar 2024** | 25 Aug 2023 | 14 Apr 2023 |
| Machine Age | mls | Client Info | | **198336** | 139378 | 81876 |
| Oil Age | mls | Client Info | | **62336** | 57514 | 40000 |
| Oil Changed | | Client Info | | **Changed** | N/A | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| 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 D5185m | >80 | **34** | 28 | 26 |
| Chromium | ppm | ASTM D5185m | >5 | **3** | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | **14** | 11 | 15 |
| Lead | ppm | ASTM D5185m | >30 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >150 | **38** | 45 | 106 |
| Tin | ppm | ASTM D5185m | >5 | **<1** | <1 | 2 |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **2** | 2 | 2 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **59** | 57 | 57 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | 950 | **963** | 929 | 869 |
| Calcium | ppm | ASTM D5185m | 1050 | **1164** | 1133 | 1176 |
| Phosphorus | ppm | ASTM D5185m | 995 | **877** | 912 | 887 |
| Zinc | ppm | ASTM D5185m | 1180 | **1198** | 1197 | 1122 |
| Sulfur | ppm | ASTM D5185m | 2600 | **2695** | 2508 | 1863 |

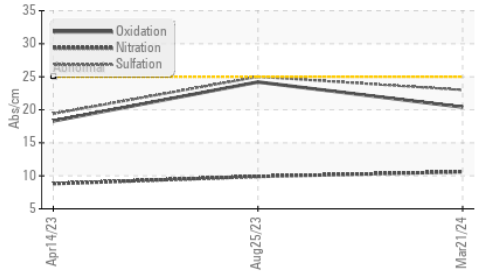
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **5** | 5 | 5 |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **27** | 27 | 39 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.8** | 0.8 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.6** | 9.9 | 8.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.0** | 25.0 | 19.4 |

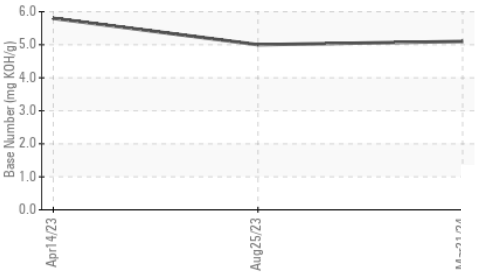
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **20.4** | 24.2 | 18.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.1** | 5.0 | 5.8 |

# OIL ANALYSIS REPORT

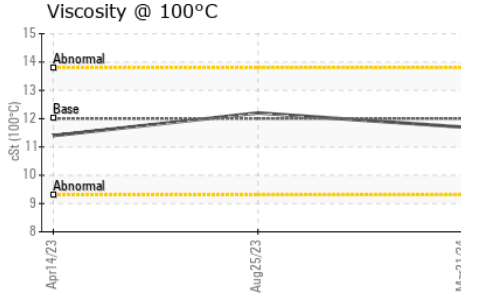
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

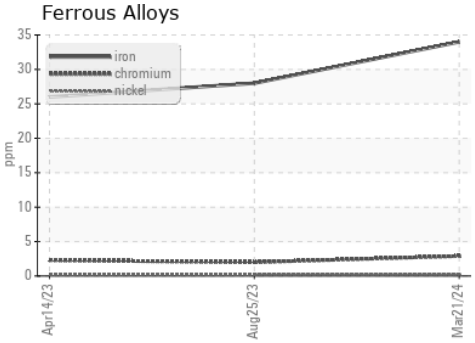



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.2 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

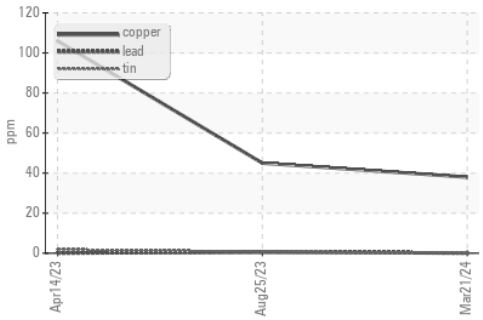
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **11.7** | 12.2 | 11.4 |

## GRAPHS

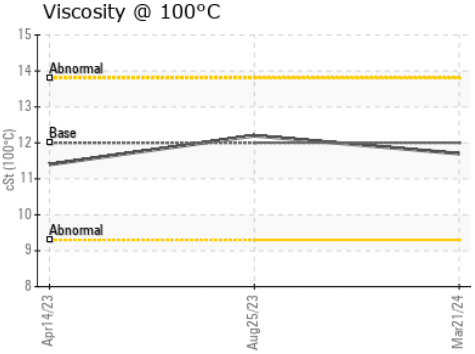
Ferrous Alloys



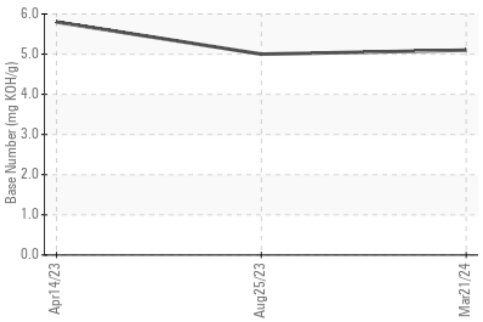

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0106549
**Lab Number** : 06138402
**Unique Number** : 10963210
**Test Package** : FLEET

**Received** : 04 Apr 2024
**Tested** : 05 Apr 2024
**Diagnosed** : 05 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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Submitted By: Robert Beal