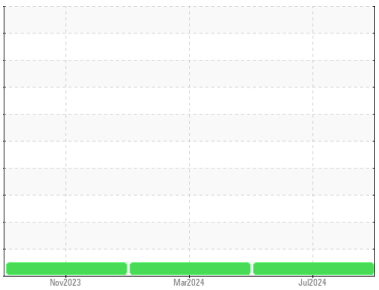
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Area
## (P926533) Preferred Service-Tractor
Machine Id
## [Preferred Service-Tractor] 192A01994
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (36 QTS)**

## 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 | | **PCA0126901** | PCA0116679 | PCA0109426 |
| Sample Date | | Client Info | | **09 Jul 2024** | 12 Mar 2024 | 13 Nov 2023 |
| Machine Age | mls | Client Info | | **541194** | 526893 | 514325 |
| Oil Age | mls | Client Info | | **14301** | 16279 | 15253 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >6.0 | **<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 | >100 | **24** | 23 | 24 |
| Chromium | ppm | ASTM D5185m | >20 | **0** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **4** | 4 | 4 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | 1 |
| Copper | ppm | ASTM D5185m | >330 | **1** | 6 | 1 |
| Tin | ppm | ASTM D5185m | >15 | **0** | 1 | 1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **0** | 0 | 2 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **58** | 62 | 59 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 950 | **951** | 979 | 913 |
| Calcium | ppm | ASTM D5185m | 1050 | **1057** | 1117 | 1023 |
| Phosphorus | ppm | ASTM D5185m | 995 | **998** | 1111 | 1042 |
| Zinc | ppm | ASTM D5185m | 1180 | **1185** | 1304 | 1247 |
| Sulfur | ppm | ASTM D5185m | 2600 | **3139** | 3066 | 3061 |

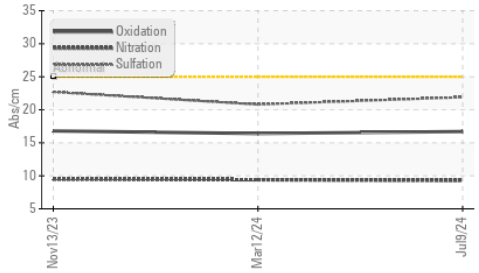
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **6** | 1 | 7 |
| Potassium | ppm | ASTM D5185m | >20 | **<1** | 3 | 1 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **1.1** | 0.9 | 1.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.3** | 9.4 | 9.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.9** | 20.8 | 22.7 |

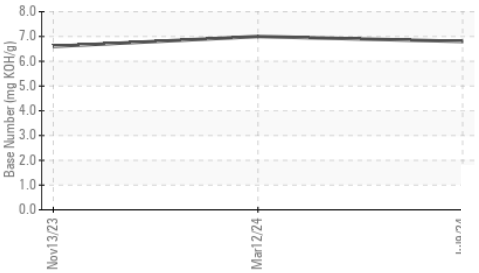
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.7** | 16.4 | 16.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **6.8** | 7.0 | 6.6 |

# OIL ANALYSIS REPORT

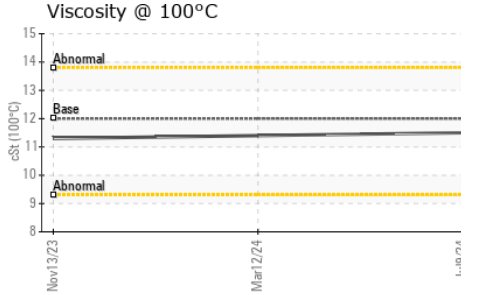
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

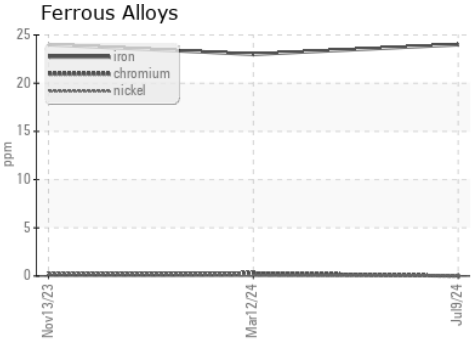



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

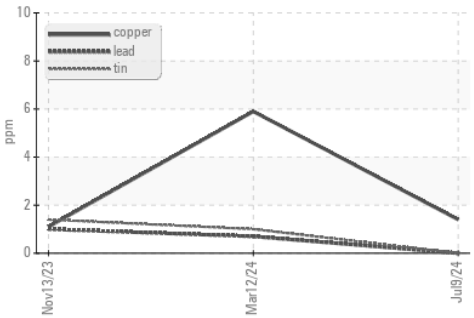
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **11.5** | 11.4 | 11.3 |

## GRAPHS

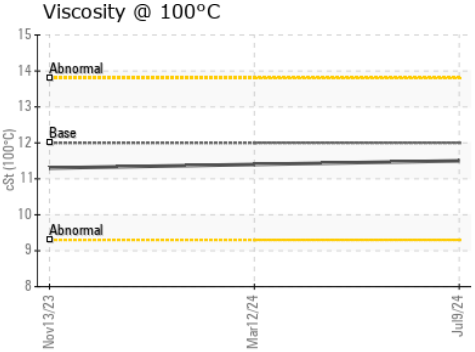
Ferrous Alloys



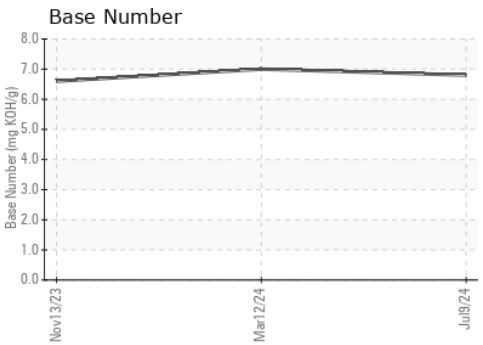

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0126901
**Lab Number** : 06235471
**Unique Number** : 11124305
**Test Package** : FLEET

**Received** : 15 Jul 2024
**Tested** : 15 Jul 2024
**Diagnosed** : 15 Jul 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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