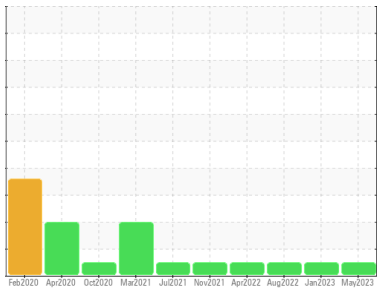
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**1926723**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (38 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 | | **PCA0099330** | PCA0091081 | PCA0079889 |
| Sample Date | | Client Info | | **16 May 2023** | 23 Jan 2023 | 29 Aug 2022 |
| Machine Age | mls | Client Info | | **341556** | 332984 | 279500 |
| Oil Age | mls | Client Info | | **61626** | 332984 | 20000 |
| 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 | **61** | 33 | 57 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | <1 | 1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | 2 |
| Titanium | ppm | ASTM D5185m | | **15** | 17 | 11 |
| Silver | ppm | ASTM D5185m | >2 | **0** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >25 | **7** | 6 | 10 |
| Lead | ppm | ASTM D5185m | >40 | **3** | <1 | 4 |
| Copper | ppm | ASTM D5185m | >330 | **19** | 14 | 30 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 2 |
| Vanadium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

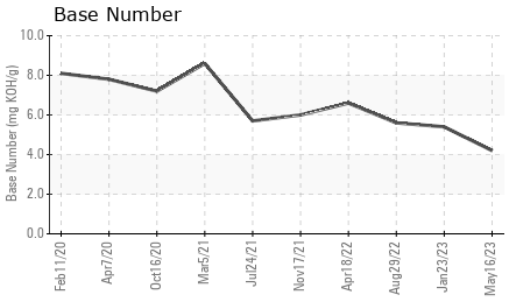
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **1** | 4 | 2 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **48** | 40 | 51 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | 950 | **802** | 674 | 812 |
| Calcium | ppm | ASTM D5185m | 1050 | **1129** | 1094 | 1197 |
| Phosphorus | ppm | ASTM D5185m | 995 | **889** | 765 | 853 |
| Zinc | ppm | ASTM D5185m | 1180 | **1162** | 963 | 1171 |
| Sulfur | ppm | ASTM D5185m | 2600 | **2590** | 2886 | 2831 |

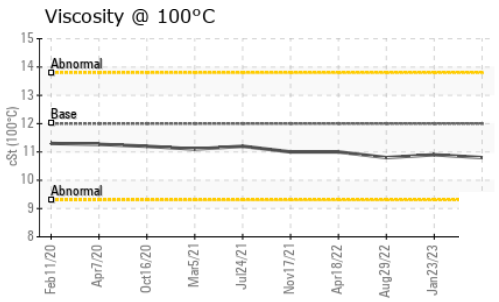
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **6** | 6 | 7 |
| Sodium | ppm | ASTM D5185m | | **19** | 12 | 22 |
| Potassium | ppm | ASTM D5185m | >20 | **9** | 8 | 13 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.8** | 0.6 | 0.8 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **13.7** | 11.3 | 13.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **27.3** | 24.4 | 26.3 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **25.0** | 20.4 | 23.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **4.2** | 5.4 | 5.6 |

# OIL ANALYSIS REPORT



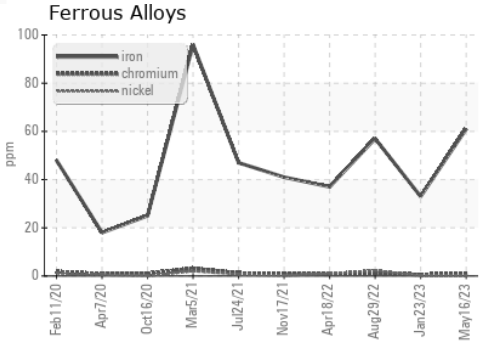




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

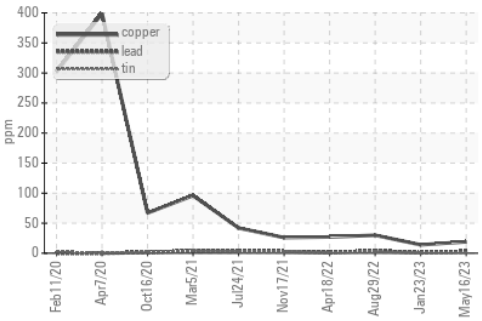
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **10.8** | 10.9 | 10.8 |

## GRAPHS

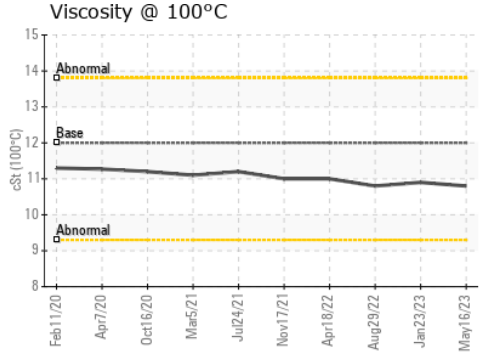
Ferrous Alloys



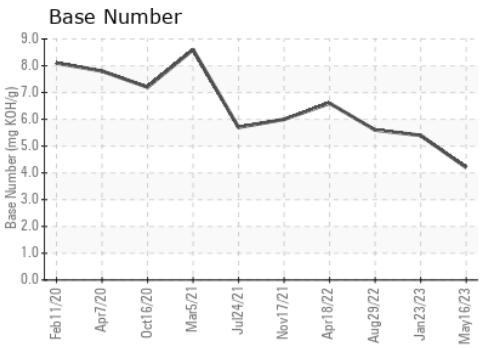

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0099330
**Lab Number** : 06030157
**Unique Number** : 10779948
**Test Package** : FLEET

**Received** : 11 Dec 2023
**Diagnosed** : 13 Dec 2023
**Diagnostician** : Don Baldridge

*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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Report Id: PERGEODE [WUSCAR] 06030157 (Generated: 12/13/2023 13:34:55) Rev: 1

Submitted By: ?