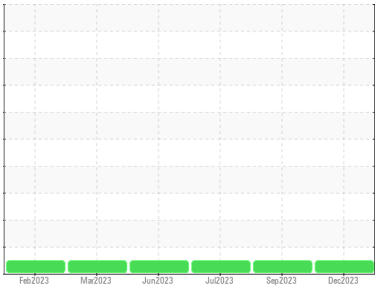
# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

Sample Rating Trend




NORMAL

Area
**FUEL**
Machine Id
**341**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- GAL)**

## DIAGNOSIS

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

**Wear**
Metal levels are typical for a new component breaking in.

**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 | | **PCA0109678** | PCA0098667 | PCA0098684 |
| Sample Date | | Client Info | | **05 Dec 2023** | 29 Sep 2023 | 17 Jul 2023 |
| Machine Age | mls | Client Info | | **56544** | 32234 | 32234 |
| Oil Age | mls | Client Info | | **6000** | 16000 | 6000 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<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 | >200 | **15** | 16 | 15 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | **2** | 5 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | **8** | 10 | 6 |
| Lead | ppm | ASTM D5185m | >30 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >30 | **1** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

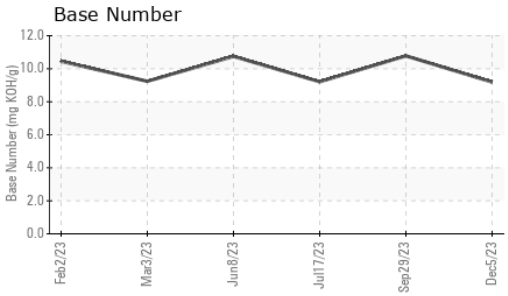
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **14** | 12 | 6 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **60** | 57 | 63 |
| Manganese | ppm | ASTM D5185m | 0 | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 950 | **941** | 961 | 1027 |
| Calcium | ppm | ASTM D5185m | 1050 | **1128** | 1120 | 1132 |
| Phosphorus | ppm | ASTM D5185m | 995 | **1039** | 1020 | 1057 |
| Zinc | ppm | ASTM D5185m | 1180 | **1251** | 1242 | 1310 |
| Sulfur | ppm | ASTM D5185m | 2600 | **3085** | 3186 | 3742 |

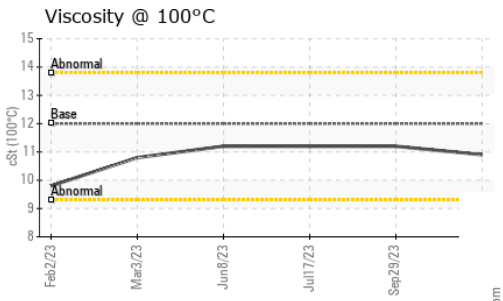
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **4** | 4 | 3 |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **16** | 28 | 13 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.4** | 0.3 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.3** | 7.5 | 8.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.7** | 18.2 | 19.1 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.7** | 14.4 | 15.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **9.19** | 10.78 | 9.21 |

# OIL ANALYSIS REPORT

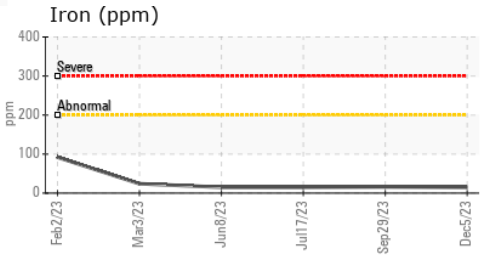


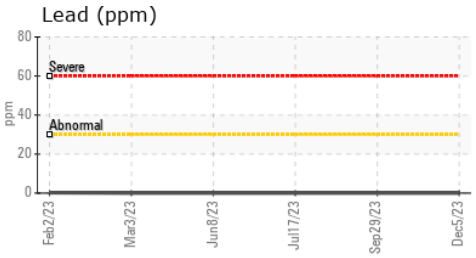



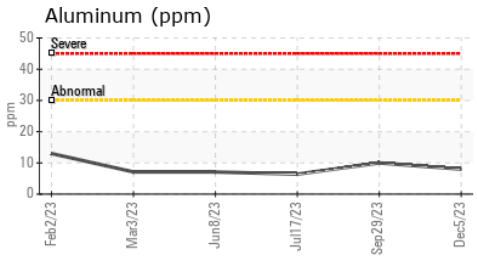

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

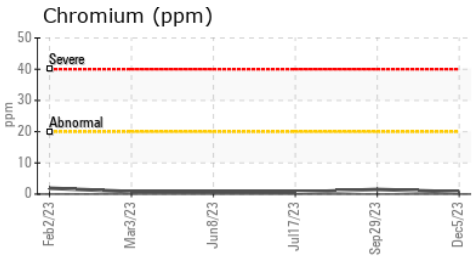
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **10.9** | 11.2 | 11.2 |

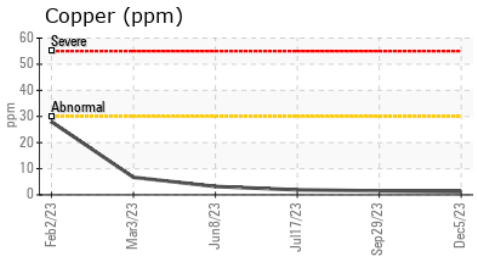
## GRAPHS

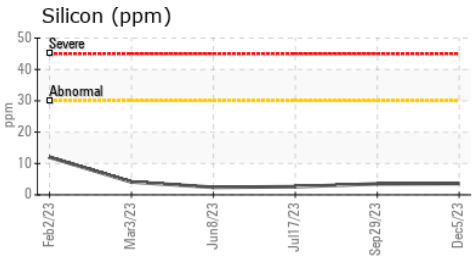


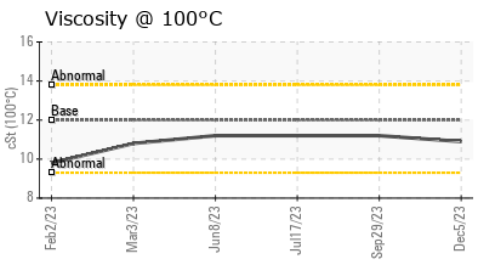



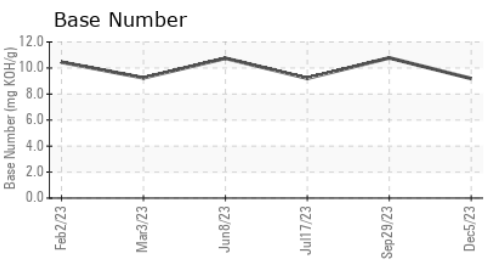




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0109678
**Lab Number** : 06028823
**Unique Number** : 10778614
**Test Package** : MOB 2

**Received** : 07 Dec 2023
**Diagnosed** : 09 Dec 2023
**Diagnostician** : Wes Davis

Certificate L2367

*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)*

**DENNIS K BURKE INC - INTERNAL SAMPLES**
555 CONSTITUTION DR
TAUNTON, MA
US 02780
Contact: GREG DUNKER

T:
F: (617)889-6422

Report Id: DENTAU [WUSCAR] 06028823 (Generated: 12/09/2023 12:05:46) Rev: 1

Submitted By: JOHN MEDEIROS