# OIL ANALYSIS REPORT

Sample Rating Trend


**DIRT**

Machine Id
**336813**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- GAL)**

## DIAGNOSIS

**Recommendation**

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

**Wear**

All component wear rates are normal.

**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. Elemental level of silicon (Si) above normal indicating ingress of seal material.

**Fluid Condition**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0099118** | --- | --- |
| Sample Date | | Client Info | | **15 Aug 2023** | --- | --- |
| Machine Age | mls | Client Info | | **0** | --- | --- |
| Oil Age | mls | Client Info | | **0** | --- | --- |
| Oil Changed | | Client Info | | **Changed** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | --- | --- |
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **99** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **3** | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **49** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **<1** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | **79** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **1** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **43** | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 50 | **120** | --- | --- |
| Manganese | ppm | ASTM D5185m | 0 | **6** | --- | --- |
| Magnesium | ppm | ASTM D5185m | 950 | **732** | --- | --- |
| Calcium | ppm | ASTM D5185m | 1050 | **1366** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 995 | **750** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1180 | **890** | --- | --- |
| Sulfur | ppm | ASTM D5185m | 2600 | **3198** | --- | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | ▲ **29** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **8** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **120** | --- | --- |

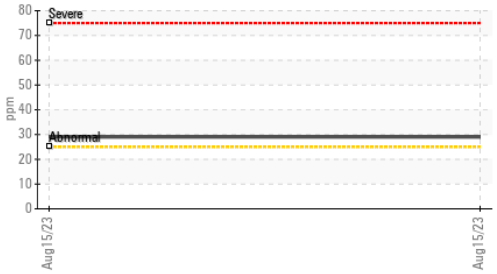
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.8** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **12.7** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.2** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **21.3** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.2** | --- | --- |

# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

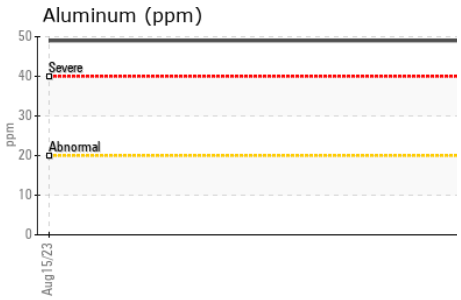
Silicon (ppm)




Base Number


Viscosity @ 100°C


Aluminum (ppm)

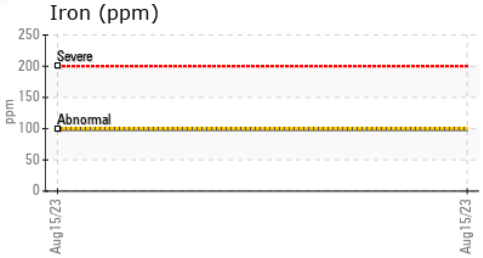



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt |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

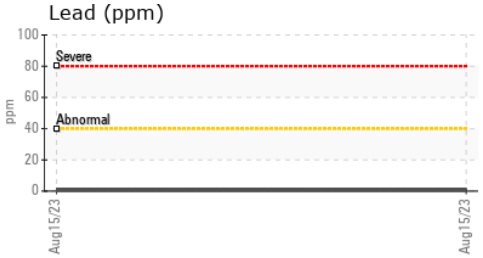
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **12.6** | --- | --- |

## GRAPHS

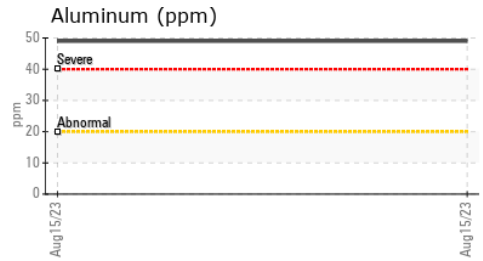
Iron (ppm)



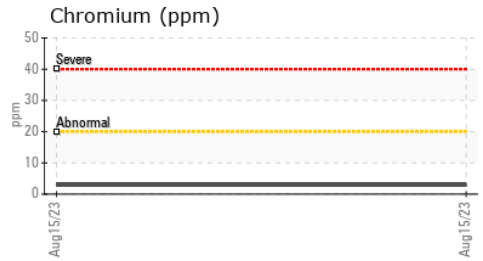

Lead (ppm)



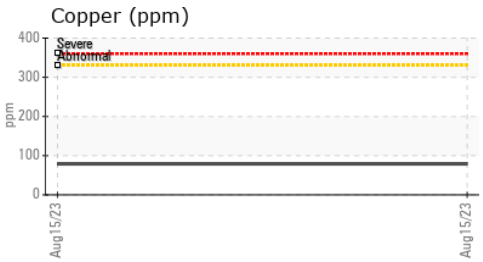

Aluminum (ppm)



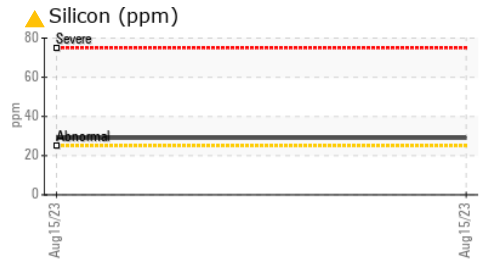

Chromium (ppm)



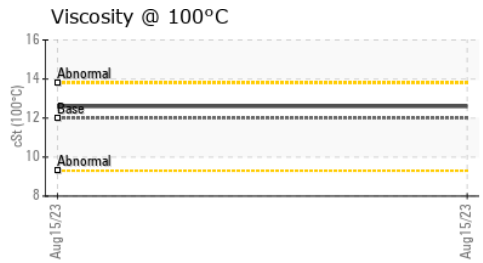

Copper (ppm)



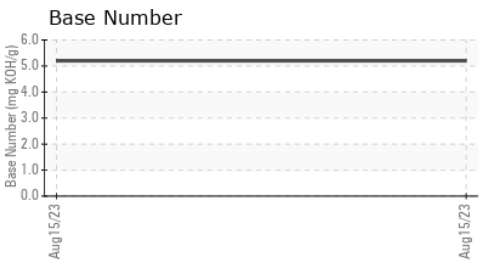

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0099118 **Received** : 28 Aug 2023
**Lab Number** : 05935899 **Diagnosed** : 29 Aug 2023
**Unique Number** : 10621170 **Diagnostician** : Sean Felton
**Test Package** : MOB 1 ( Additional Tests: TBN )

*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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