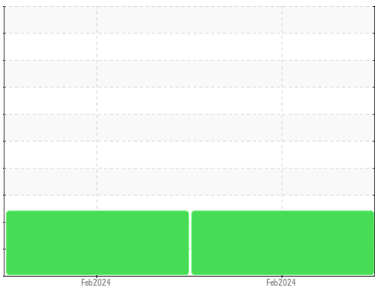
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




**DIRT**

Machine Id
## OMC SPRINT SHAKER SH-19 (S/N 20142)
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON HP 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: one of two samples received with same ID and sampling date, different hours.

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

**Contamination**
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

**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 | | **PCA0107111** | PCA0107113 | --- |
| Sample Date | | Client Info | | **19 Feb 2024** | 19 Feb 2024 | --- |
| Machine Age | hrs | Client Info | | **3561** | 3068 | --- |
| Oil Age | hrs | Client Info | | **250** | 250 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **ABNORMAL** | ABNORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | --- |
| Water | | WC Method | >0.2 | **NEG** | NEG | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **74** | 79 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **6** | 7 | --- |
| Nickel | ppm | ASTM D5185m | >4 | **2** | 3 | --- |
| Titanium | ppm | ASTM D5185m | | **1** | 1 | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **14** | 16 | --- |
| Lead | ppm | ASTM D5185m | >40 | **<1** | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | **5** | 6 | --- |
| Tin | ppm | ASTM D5185m | >15 | **<1** | 1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Cadmium | ppm | ASTM D5185m | | **<1** | <1 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **3** | 3 | --- |
| Barium | ppm | ASTM D5185m | | **2** | 1 | --- |
| Molybdenum | ppm | ASTM D5185m | | **64** | 62 | --- |
| Manganese | ppm | ASTM D5185m | | **2** | 2 | --- |
| Magnesium | ppm | ASTM D5185m | | **932** | 932 | --- |
| Calcium | ppm | ASTM D5185m | | **1060** | 1055 | --- |
| Phosphorus | ppm | ASTM D5185m | | **880** | 908 | --- |
| Zinc | ppm | ASTM D5185m | | **1209** | 1223 | --- |
| Sulfur | ppm | ASTM D5185m | | **3002** | 3149 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **38** | 41 | --- |
| Sodium | ppm | ASTM D5185m | | **4** | 3 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **5** | 4 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.2 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **10.3** | 8.3 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.2** | 18.4 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.2** | 15.4 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.2** | 9.2 | --- |

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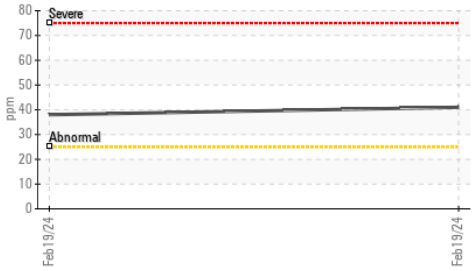
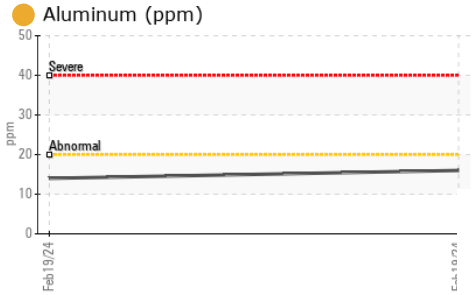
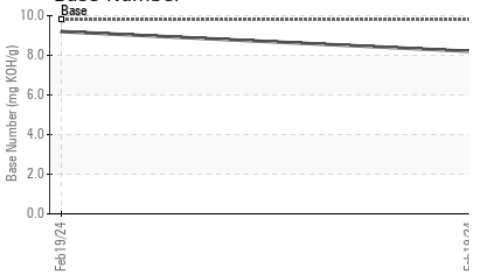
Silicon (ppm)



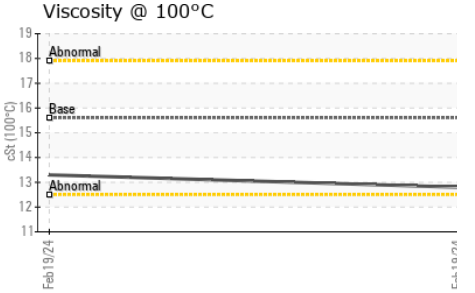

Aluminum (ppm)




Base Number




Viscosity @ 100°C

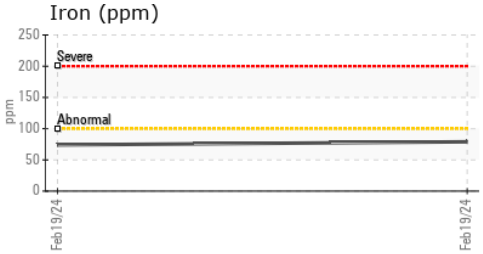



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

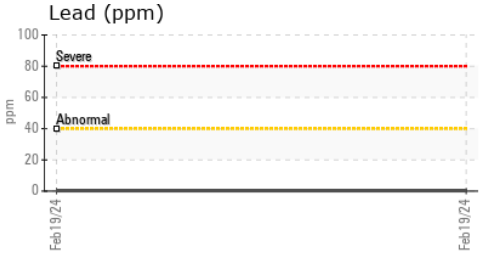
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.6 | **12.8** | 13.3 | --- |

## GRAPHS

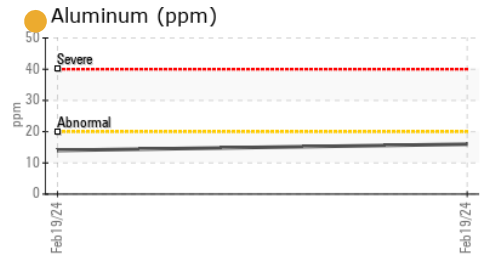
Iron (ppm)



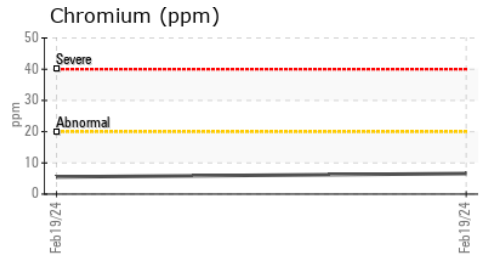

Lead (ppm)



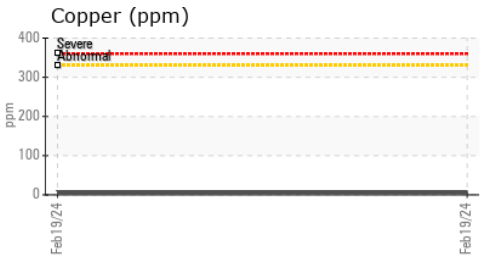

Aluminum (ppm)



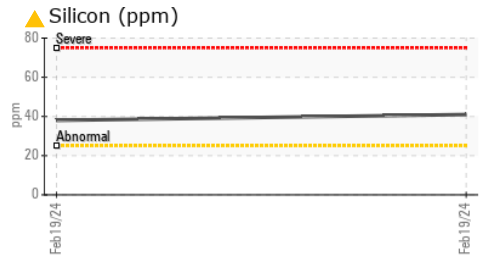

Chromium (ppm)



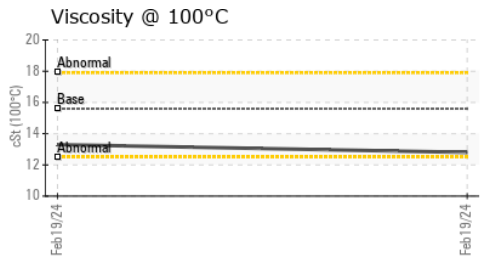

Copper (ppm)



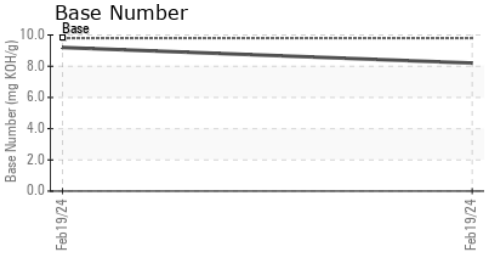

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0107111 **Received** : 28 Feb 2024
**Lab Number** : 06102748 **Tested** : 29 Feb 2024
**Unique Number** : 10900978 **Diagnosed** : 29 Feb 2024 - Don Baldridge
**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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