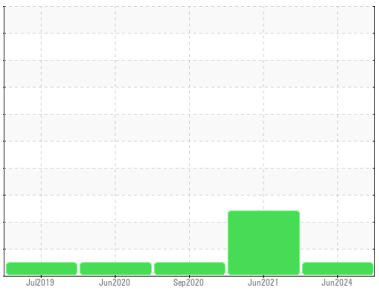
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**191221**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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

**Contamination**
Fuel content negligible. 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 | | **PCA0120997** | PCA0047217 | PCA0026916 |
| Sample Date | | Client Info | | **13 Jun 2024** | 03 Jun 2021 | 11 Sep 2020 |
| Machine Age | mls | Client Info | | **106081** | 56168 | 0 |
| Oil Age | mls | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | SEVERE | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| 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 | **28** | 27 | 29 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 0 | 5 |
| Lead | ppm | ASTM D5185m | >40 | **1** | <1 | <1 |
| Copper | ppm | ASTM D5185m | >330 | **3** | 39 | 250 |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **3** | 8 | 3 |
| Barium | ppm | ASTM D5185m | 0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **69** | 36 | 60 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 950 | **968** | 525 | 1014 |
| Calcium | ppm | ASTM D5185m | 1050 | **1127** | 682 | 1103 |
| Phosphorus | ppm | ASTM D5185m | 995 | **1052** | 592 | 1034 |
| Zinc | ppm | ASTM D5185m | 1180 | **1268** | 744 | 1180 |
| Sulfur | ppm | ASTM D5185m | 2600 | **2878** | 1518 | 2313 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **5** | 3 | 6 |
| Sodium | ppm | ASTM D5185m | | **5** | 0 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **3** | <1 | 16 |
| Fuel | % | ASTM D3524 | >5 | **0.3** | ▲ 41.0 | <1.0 |

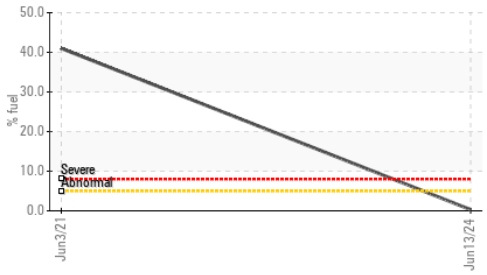
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.6** | 0.8 | 0.8 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.9** | 9.7 | 9.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.9** | 20.1 | 21.5 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **14.7** | 18.2 | 17.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **9.6** | --- | --- |

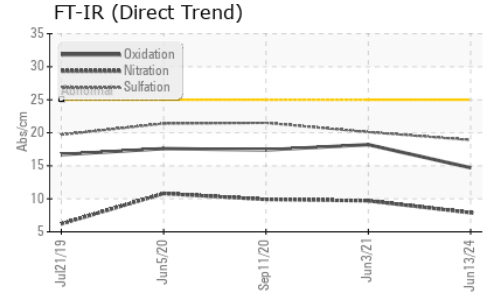
# OIL ANALYSIS REPORT

OIL DIAGNOSTICS

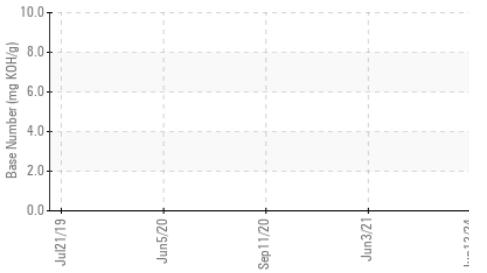
Fuel Dilution



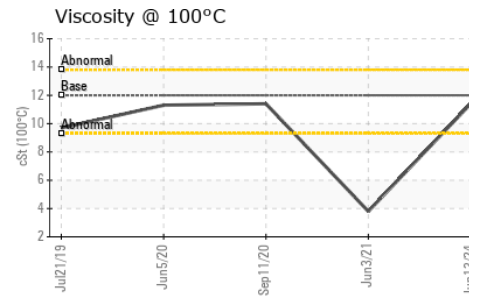

FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

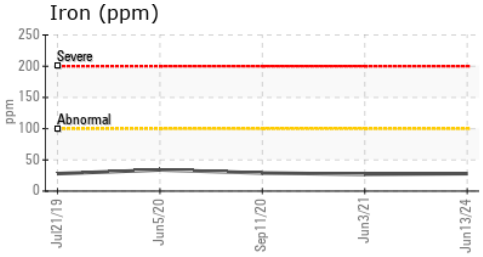



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

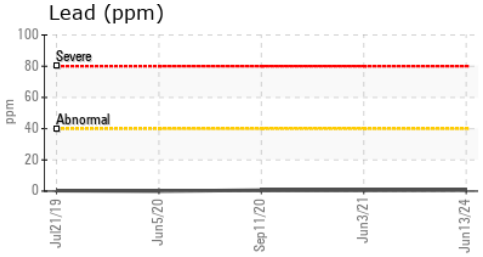
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **11.4** | ▲ 3.8 | 11.4 |

## GRAPHS

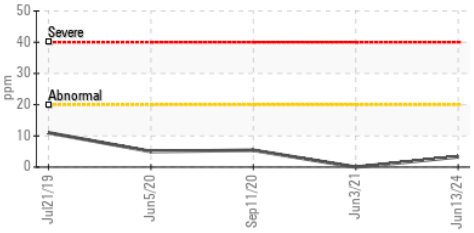
Iron (ppm)



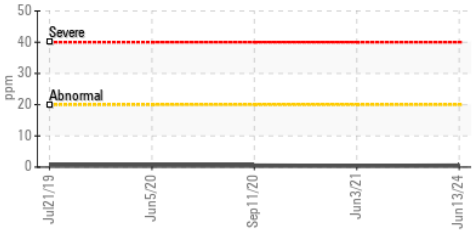

Lead (ppm)



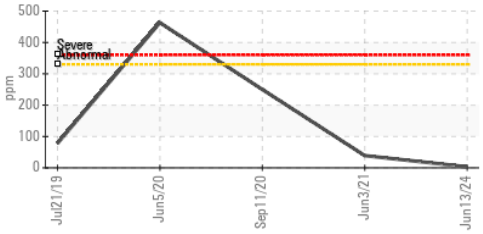

Aluminum (ppm)



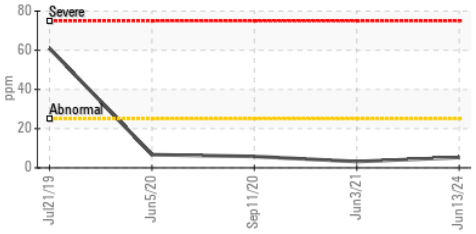

Chromium (ppm)



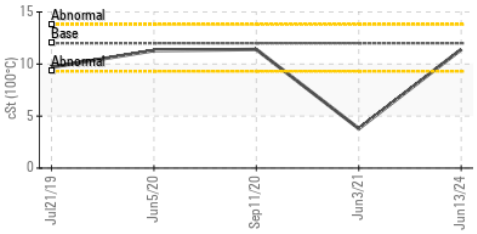

Copper (ppm)



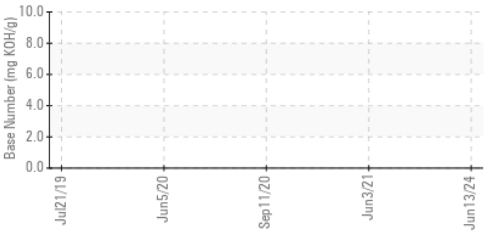

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0120997
**Lab Number** : 06225971
**Unique Number** : 11109464
**Test Package** : MOB 1 ( Additional Tests: PercentFuel, TBN )

**Received** : 02 Jul 2024
**Tested** : 03 Jul 2024
**Diagnosed** : 03 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)*

**MILLER TRUCK LEASING #114**
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Report Id: MILLOG [WUSCAR] 06225971 (Generated: 07/03/2024 15:54:45) Rev: 1

Contact/Location: ED DAVIS - MILLOG