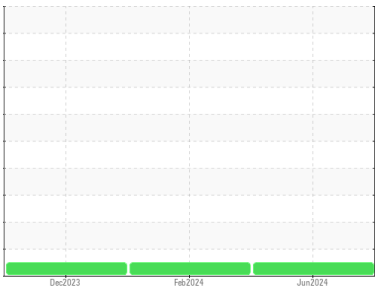
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**T330**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (--- QTS)**

## 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 | | **PCA0116129** | PCA0116118 | PCA0110914 |
| Sample Date | | Client Info | | **04 Jun 2024** | 24 Feb 2024 | 02 Dec 2023 |
| Machine Age | mls | Client Info | | **74932** | 49522 | 25321 |
| Oil Age | mls | Client Info | | **74932** | 49522 | 0 |
| Oil Changed | | Client Info | | **N/A** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<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 | >110 | **28** | 32 | 11 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | 0 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **18** | 31 | 34 |
| Lead | ppm | ASTM D5185m | >45 | **0** | 0 | 3 |
| Copper | ppm | ASTM D5185m | >85 | **3** | 0 | 3 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **2** | 6 | 224 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 2 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **61** | 58 | 1 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | 950 | **958** | 978 | 22 |
| Calcium | ppm | ASTM D5185m | 1050 | **1154** | 1215 | 2243 |
| Phosphorus | ppm | ASTM D5185m | 995 | **1041** | 1103 | 1071 |
| Zinc | ppm | ASTM D5185m | 1180 | **1292** | 1302 | 1207 |
| Sulfur | ppm | ASTM D5185m | 2600 | **3283** | 2872 | 4331 |

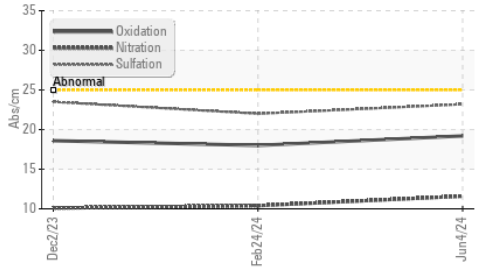
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **9** | 7 | 5 |
| Sodium | ppm | ASTM D5185m | | **1** | <1 | 0 |
| Potassium | ppm | ASTM D5185m | >20 | **39** | 68 | 9 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.5** | 0.3 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.6** | 10.4 | 10.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **23.2** | 22.0 | 23.5 |

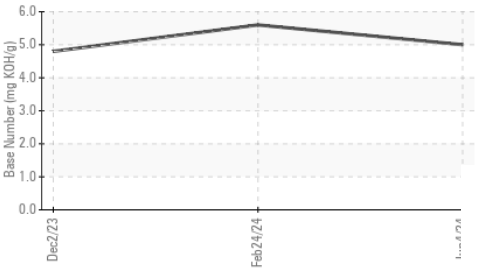
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **19.2** | 18.0 | 18.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **5.0** | 5.6 | 4.8 |

# OIL ANALYSIS REPORT

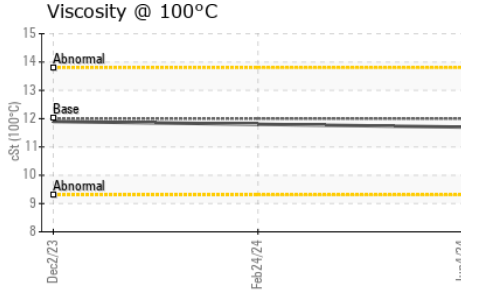
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

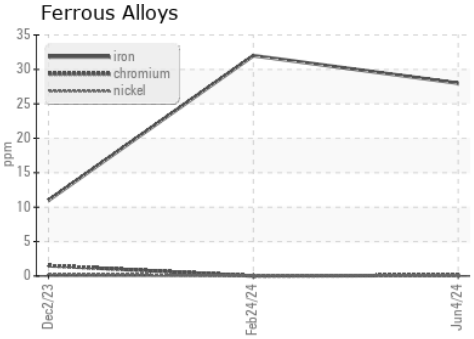



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

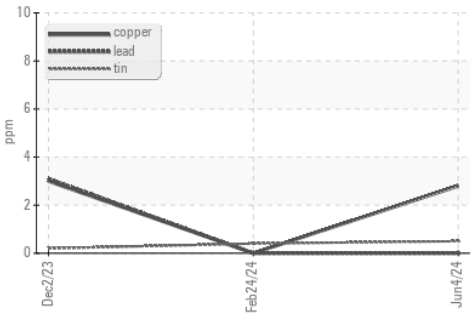
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **11.7** | 11.8 | 11.9 |

## GRAPHS

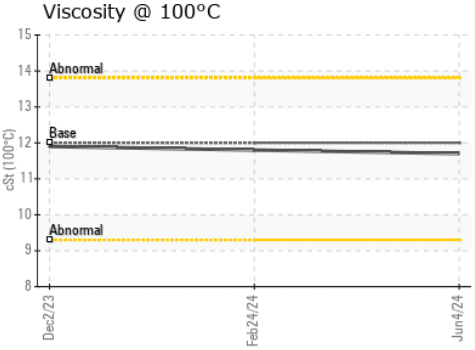
Ferrous Alloys



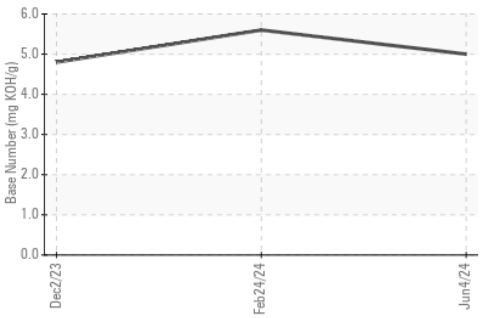

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0116129
**Lab Number** : 06202495
**Unique Number** : 11069956
**Test Package** : FLEET

**Received** : 07 Jun 2024
**Tested** : 10 Jun 2024
**Diagnosed** : 10 Jun 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)*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