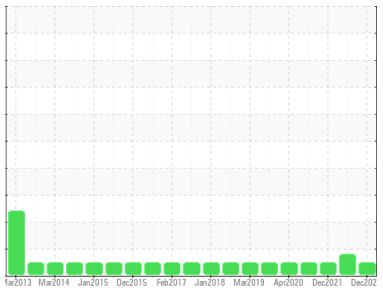
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
## FREIGHTLINER 2108
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 10W30 (7 QTS)**

## DIAGNOSIS

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

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

**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 | | **PCA0088510** | PCA0088497 | PCA0051726 |
| Sample Date | | Client Info | | **14 Dec 2023** | 03 Apr 2023 | 17 Dec 2021 |
| Machine Age | mls | Client Info | | **329111** | 310202 | 283816 |
| Oil Age | mls | Client Info | | **18909** | 27844 | 13927 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | ABNORMAL | 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 | >75 | **23** | ▲ 85 | 32 |
| Chromium | ppm | ASTM D5185m | >5 | **1** | 4 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >15 | **10** | 4 | 2 |
| Lead | ppm | ASTM D5185m | >25 | **0** | 0 | 4 |
| Copper | ppm | ASTM D5185m | >100 | **2** | 2 | 2 |
| Tin | ppm | ASTM D5185m | >4 | **0** | 0 | <1 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 2 | **16** | 4 | 10 |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 50 | **37** | 62 | 65 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 1 | <1 |
| Magnesium | ppm | ASTM D5185m | 950 | **801** | 967 | 924 |
| Calcium | ppm | ASTM D5185m | 1050 | **1159** | 1145 | 1259 |
| Phosphorus | ppm | ASTM D5185m | 995 | **885** | 1011 | 993 |
| Zinc | ppm | ASTM D5185m | 1180 | **1039** | 1263 | 1277 |
| Sulfur | ppm | ASTM D5185m | 2600 | **2832** | 3580 | 3176 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **9** | 9 | 8 |
| Sodium | ppm | ASTM D5185m | | **3** | 17 | 15 |
| Potassium | ppm | ASTM D5185m | >20 | **11** | 7 | 21 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **0.9** | 2.2 | 1.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.7** | 16.4 | 12.3 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.0** | 32.8 | 27.2 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.3** | 35.9 | 27.9 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **6.6** | 4.0 | 6.9 |

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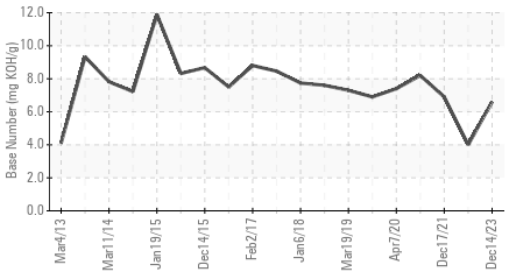
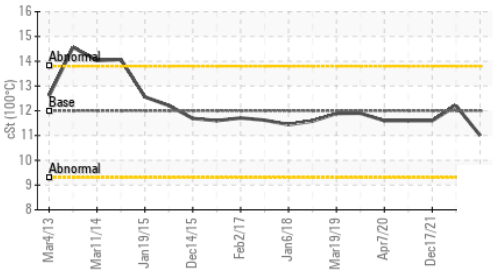
Base Number




Viscosity @ 100°C

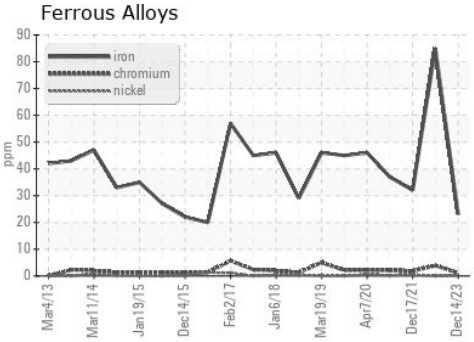



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

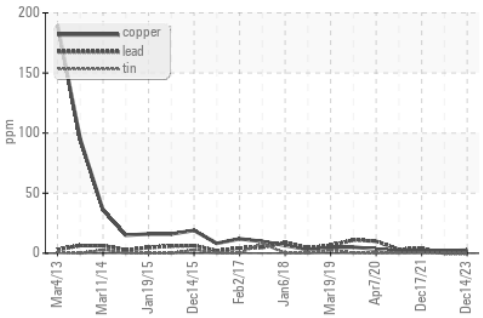
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 12.00 | **11.0** | 12.2 | 11.6 |

## GRAPHS

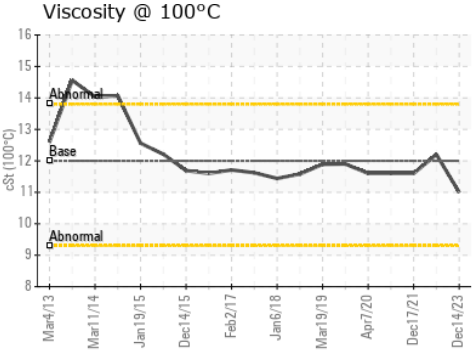
Ferrous Alloys



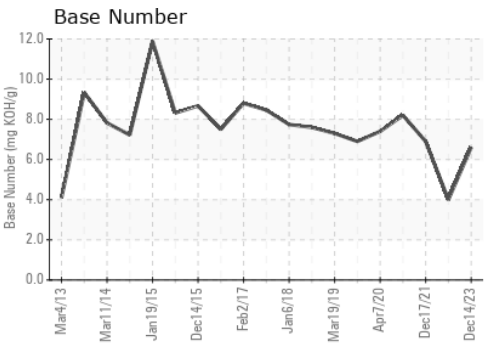

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0088510 **Recieved** : 16 Jan 2024
**Lab Number** : 06060588 **Diagnosed** : 16 Jan 2024
**Unique Number** : 10831970 **Diagnostician** : Wes Davis
**Test Package** : FLEET

*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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