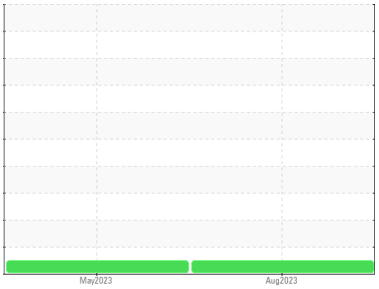
# OIL ANALYSIS REPORT

Area
## (61800Z) S0916A-Suamico
Machine Id
## MACK 920110
Component
**Front Center Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (42 QTS)**

**Sample Rating Trend**




**NORMAL**

## 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 | | **GFL0074835** | GFL0074818 | --- |
| Sample Date | | Client Info | | **07 Aug 2023** | 03 May 2023 | --- |
| Machine Age | hrs | Client Info | | **7804** | 7381 | --- |
| Oil Age | hrs | Client Info | | **423** | 581 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **NORMAL** | NORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >3.0 | **<1.0** | <1.0 | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >120 | **11** | 11 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | --- |
| Nickel | ppm | ASTM D5185m | >5 | **0** | <1 | --- |
| Titanium | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | <1 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 2 | --- |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | **<1** | 0 | --- |
| Tin | ppm | ASTM D5185m | >15 | **<1** | 1 | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

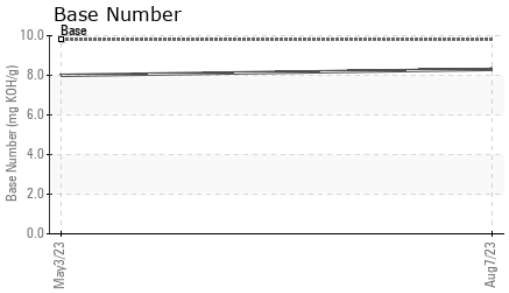
| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 0 | **8** | 15 | --- |
| Barium | ppm | ASTM D5185m | 0 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 60 | **61** | 64 | --- |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 1010 | **972** | 974 | --- |
| Calcium | ppm | ASTM D5185m | 1070 | **1193** | 1186 | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1019** | 1041 | --- |
| Zinc | ppm | ASTM D5185m | 1270 | **1276** | 1307 | --- |
| Sulfur | ppm | ASTM D5185m | 2060 | **3566** | 3719 | --- |

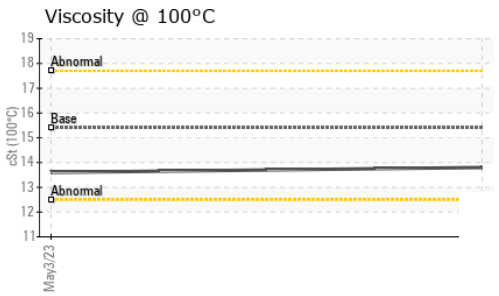
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 4 | --- |
| Sodium | ppm | ASTM D5185m | | **2** | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **0** | 2 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.5** | 0.6 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.2** | 8.1 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.7** | 20.1 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.1** | 15.5 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.3** | 8.0 | --- |

# OIL ANALYSIS REPORT



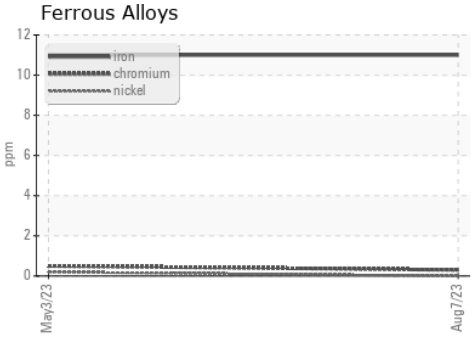




| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt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

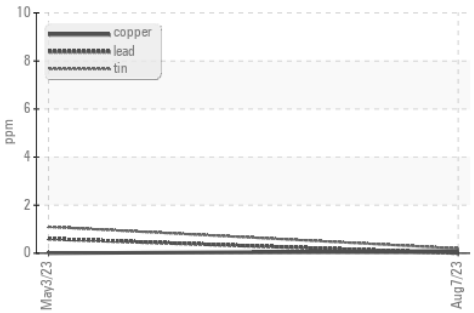
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.8** | 13.6 | --- |

## GRAPHS

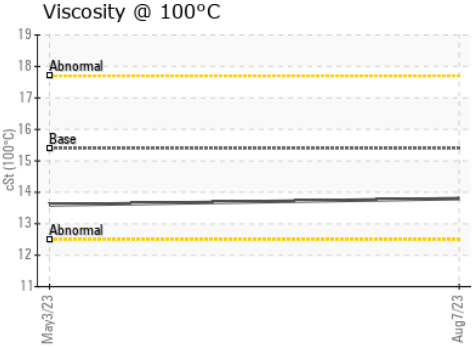
Ferrous Alloys



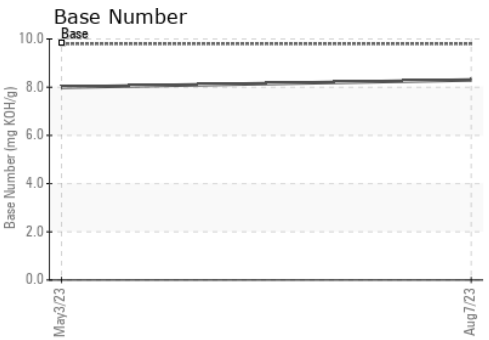

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0074835
**Lab Number** : 05937031
**Unique Number** : 10622302
**Test Package** : FLEET

**Received** : 29 Aug 2023
**Diagnosed** : 29 Aug 2023
**Diagnostician** : 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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Report Id: GFL916A [WUSCAR] 05937031 (Generated: 08/29/2023 18:31:02) Rev: 1

Submitted By: NICHOLAS WEIDNER