FLEET LUBE 360 OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

| | |
|---|---|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id
**712043**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (40 QTS)**

## RECOMMENDATION

Resample at the next service interval to monitor.

## WEAR

Metal levels are typical for a new component breaking in.

## CONTAMINATION

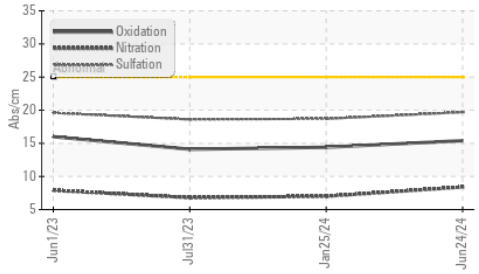
There is no indication of any contamination in the oil.

## FLUID CONDITION

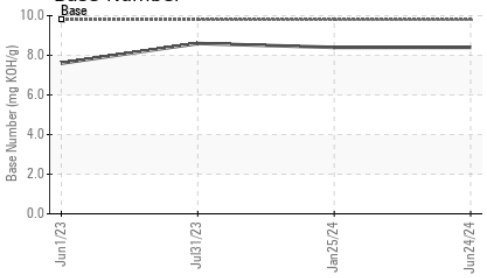
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **GFL0114710** | GFL0092862 | GFL0076908 |
| Sample Date | | Client Info | | **24 Jun 2024** | 25 Jan 2024 | 31 Jul 2023 |
| Machine Age | mls | Client Info | | **42925** | 37481 | 29515 |
| Oil Age | mls | Client Info | | **5444** | 7966 | 26741 |
| Filter Age | mls | Client Info | | **0** | 7966 | 26741 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Filter Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >80 | **15** | 3 | 7 |
| Chromium | ppm | ASTM D5185m | >5 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | **7** | 2 | 1 |
| Lead | ppm | ASTM D5185m | >30 | **<1** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >150 | **7** | <1 | <1 |
| Tin | ppm | ASTM D5185m | >5 | **<1** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >20 | **3** | 1 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **11** | 4 | 3 |
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | **0.5** | 0.4 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.4** | 7.0 | 6.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.7** | 18.7 | 18.6 |
| 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 |
| Sodium | ppm | ASTM D5185m | | **0** | 0 | 1 |
| Boron | ppm | ASTM D5185m | 0 | **9** | 6 | 8 |
| Barium | ppm | ASTM D5185m | 0 | **<1** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | **60** | 62 | 56 |
| Manganese | ppm | ASTM D5185m | 0 | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | **906** | 904 | 894 |
| Calcium | ppm | ASTM D5185m | 1070 | **1125** | 1089 | 1185 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1001** | 924 | 987 |
| Zinc | ppm | ASTM D5185m | 1270 | **1178** | 1212 | 1212 |
| Sulfur | ppm | ASTM D5185m | 2060 | **2672** | 2885 | 3607 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.4** | 14.4 | 14.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | **8.4** | 8.4 | 8.6 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | **13.6** | 13.9 | 13.9 |

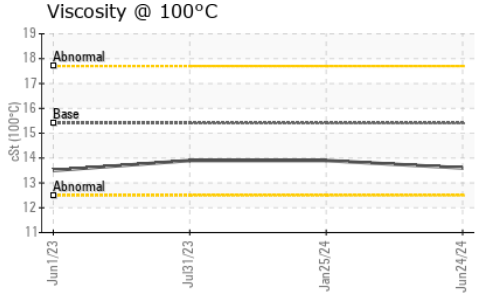
FT-IR (Direct Trend)



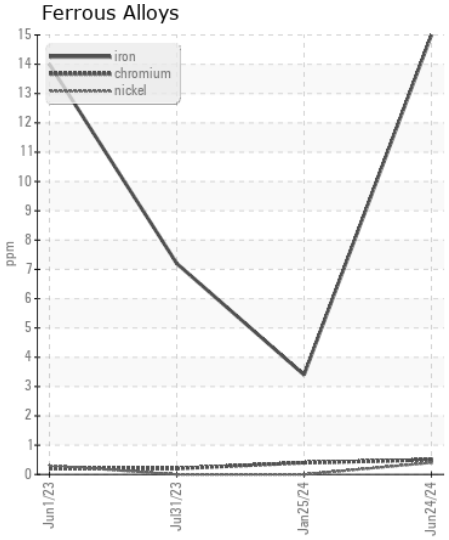

Base Number



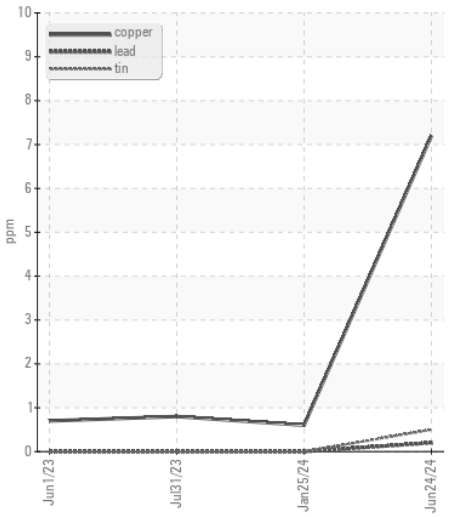

Viscosity @ 100°C



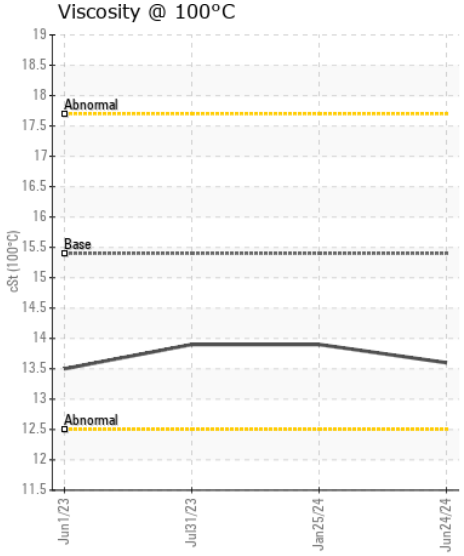

Ferrous Alloys



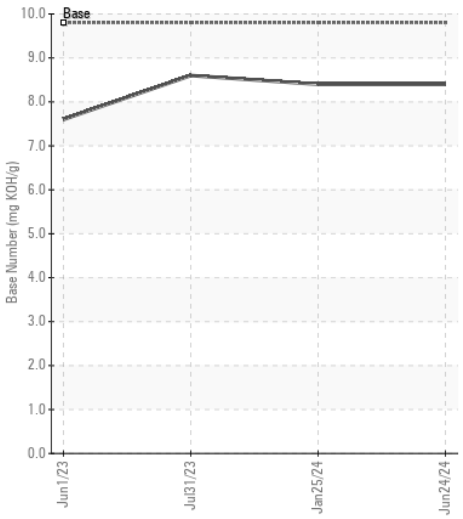

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0114710
**Lab Number** : 06226061
**Unique Number** : 11109554
**Test Package** : FLEET

**Received** : 02 Jul 2024
**Tested** : 03 Jul 2024
**Diagnosed** : 03 Jul 2024 - Wes Davis

**GFL Environmental - 412 - Northern Michigan TS**
348 US-41
Negaunee, MI
US 49866
Contact: Service Manager
T:
F:

*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)*