FLEET LUBE 360 OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

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

Machine Id
**125009-829**
Component
**Diesel Engine**
Fluid
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

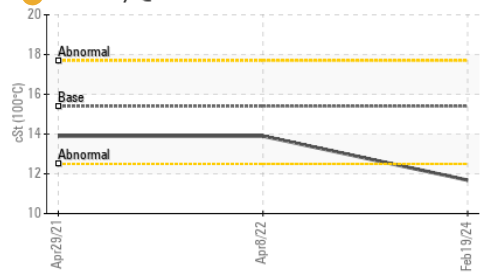
Fuel content negligible. There is no indication of any contamination in the oil.

## FLUID CONDITION

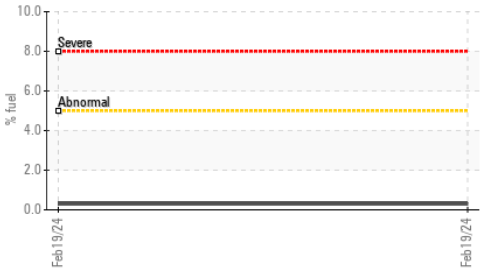
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | GFL0061037 | GFL0030388 | GFL0018785 |
| Sample Date | | Client Info | | 19 Feb 2024 | 08 Apr 2022 | 29 Apr 2021 |
| Machine Age | hrs | Client Info | | 9147 | 7351 | 6296 |
| Oil Age | hrs | Client Info | | 570 | 1055 | 0 |
| Filter Age | hrs | Client Info | | 570 | 1055 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | ATTENTION | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | 7 | 22 | 8 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 31 | 10 | 68 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 2 | 5 | <1 |
| Lead | ppm | ASTM D5185m | >40 | 3 | 9 | <1 |
| Copper | ppm | ASTM D5185m | >330 | <1 | 1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | <1 |
| 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 | >25 | 7 | 14 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | 4 | 11 | 6 |
| Fuel | % | ASTM D3524 | >5 | 0.3 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.3 | 0.7 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.6 | 13.8 | 10 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 19.7 | 27.2 | 22.3 |
| 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 | | 4 | 7 | 5 |
| Boron | ppm | ASTM D5185m | 0 | 52 | 27 | 96 |
| Barium | ppm | ASTM D5185m | 0 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 60 | 39 | 37 | 11 |
| Manganese | ppm | ASTM D5185m | 0 | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 1010 | 708 | 533 | 420 |
| Calcium | ppm | ASTM D5185m | 1070 | 1284 | 1817 | 1696 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 977 | 788 | 942 |
| Zinc | ppm | ASTM D5185m | 1270 | 1119 | 966 | 1060 |
| Sulfur | ppm | ASTM D5185m | 2060 | 3086 | 2214 | 3101 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 15.4 | 28.0 | 18.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 9.8 | 8.2 | 7.3 | 8.2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 11.68 | 13.9 | 13.9 |

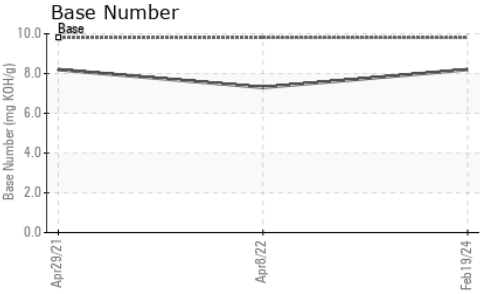
Viscosity @ 100°C



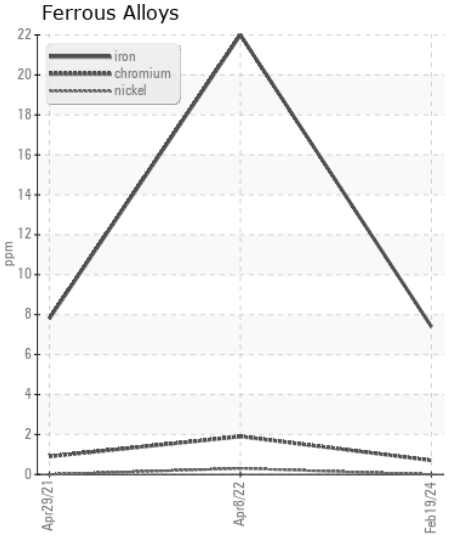

Fuel Dilution



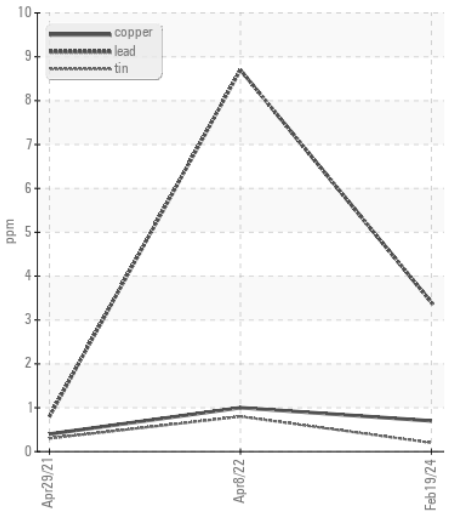

Base Number



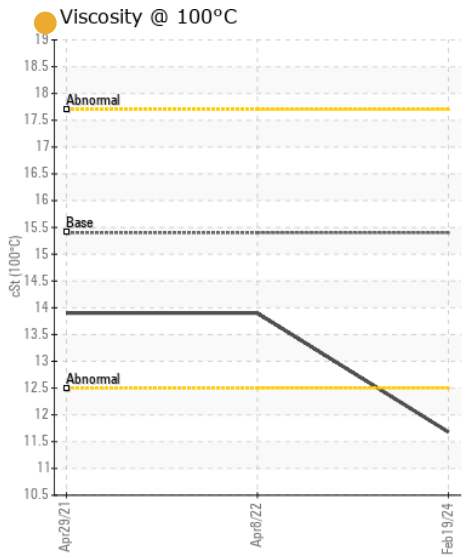

Ferrous Alloys




Non-ferrous Metals




Viscosity @ 100°C

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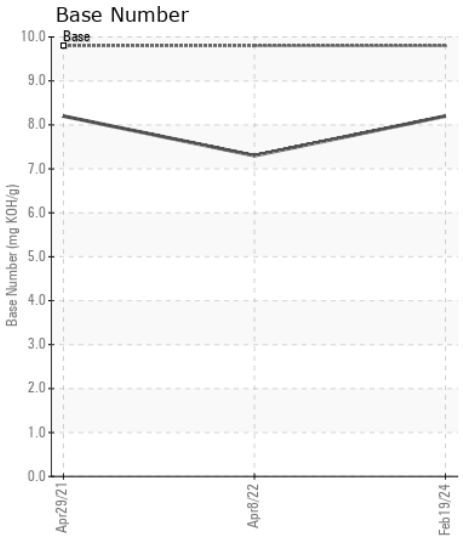


Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0061037
**Lab Number** : 06099831
**Unique Number** : 10898061
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**Received** : 26 Feb 2024
**Tested** : 01 Mar 2024
**Diagnosed** : 01 Mar 2024 - Jonathan Hester

**GFL Environmental - 634 - Kalamazoo**
2510 Saidla Dr
Kalamazoo, MI
US 49001
Contact:
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)*