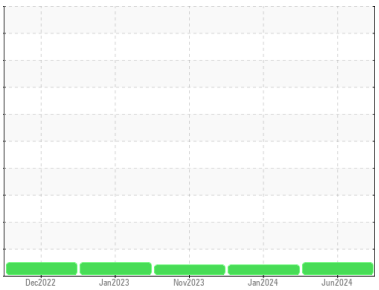
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**225021-825**
Component
**Diesel Engine**
Fluid
**CHEVRON DELO 400 XLE 15W40 (6 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 | | **GFL0104694** | GFL0096288 | GFL0096314 |
| Sample Date | | Client Info | | **12 Jun 2024** | 22 Jan 2024 | 28 Nov 2023 |
| Machine Age | mls | Client Info | | **165958** | 160884 | 0 |
| Oil Age | mls | Client Info | | **160884** | 137468 | 0 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Not Changd |
| Sample Status | | | | **NORMAL** | ABNORMAL | ABNORMAL |

| 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 | >100 | **47** | 104 | 87 |
| Chromium | ppm | ASTM D5185m | >20 | **1** | 3 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | | **11** | 11 | 12 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | **8** | 16 | 13 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **12** | 22 | 24 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **42** | 43 | 35 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 2 |
| Molybdenum | ppm | ASTM D5185m | | **52** | 75 | 80 |
| Manganese | ppm | ASTM D5185m | | **1** | 2 | <1 |
| Magnesium | ppm | ASTM D5185m | | **664** | 735 | 659 |
| Calcium | ppm | ASTM D5185m | | **1458** | 1691 | 1529 |
| Phosphorus | ppm | ASTM D5185m | 760 | **735** | 745 | 696 |
| Zinc | ppm | ASTM D5185m | 830 | **844** | 921 | 873 |
| Sulfur | ppm | ASTM D5185m | 2770 | **3381** | 3130 | 3089 |

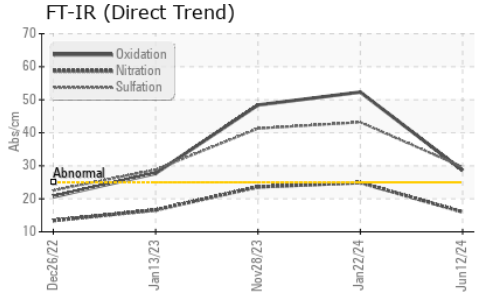
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **8** | 13 | 14 |
| Sodium | ppm | ASTM D5185m | | **6** | 8 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | **5** | 2 | 4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.1 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **16.0** | 24.9 | 23.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **29.6** | 43.2 | 41.3 |

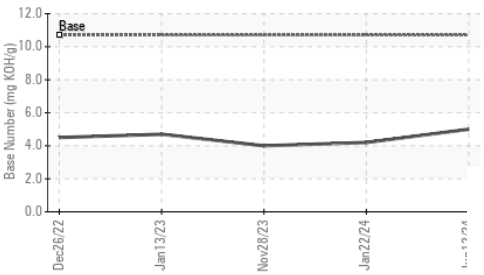
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **28.6** | 52.3 | 48.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.7 | **5.0** | 4.2 | 4.0 |

# OIL ANALYSIS REPORT

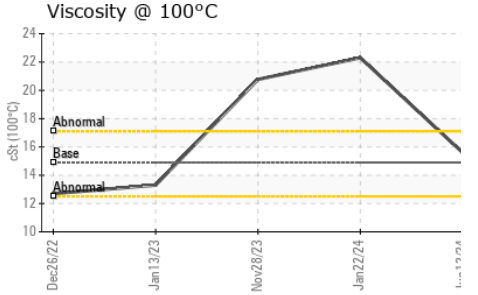
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

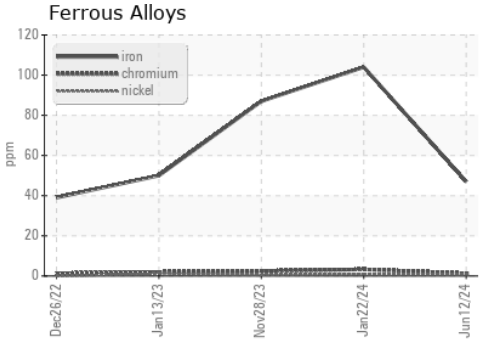



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | LIGHT |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

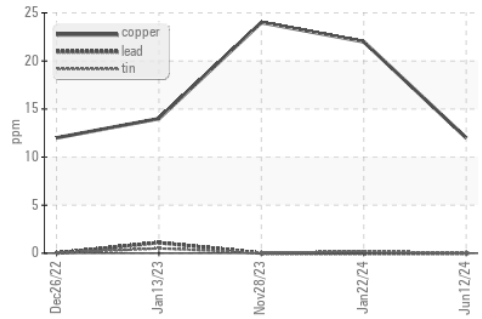
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.9 | **15.6** | ▲ 22.3 | ▲ 20.77 |

## GRAPHS

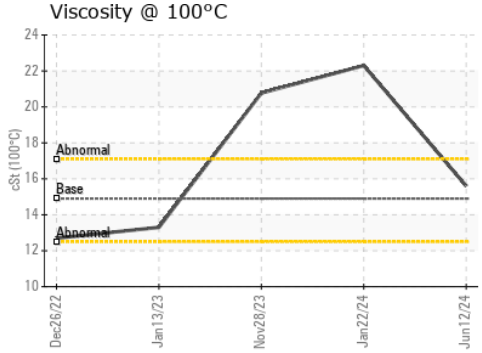
Ferrous Alloys



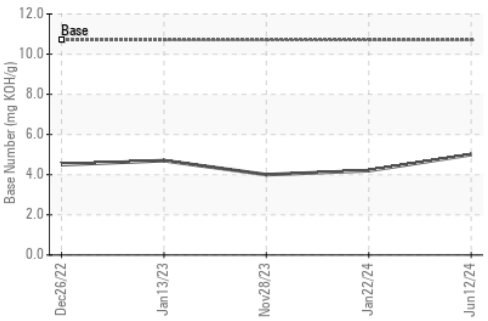

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0104694
**Lab Number** : 06212867
**Unique Number** : 11085731
**Test Package** : FLEET

**Received** : 17 Jun 2024
**Tested** : 19 Jun 2024
**Diagnosed** : 19 Jun 2024 - Angela Borella

*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)*

**GFL Environmental - 624 - Elmira Hauling**
10164 M-32
Elmira, MI
US 49730
Contact: ANDY GROBASKI
andyg@americanwaste.org
T: (989)370-2941
F:

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Submitted By: KEITH CAMPBELL