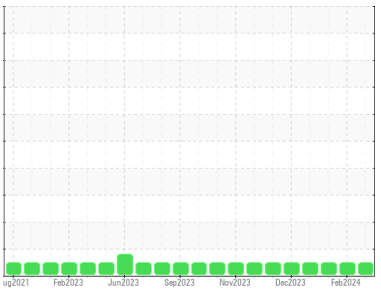
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**929054-182539**
Component
**Diesel Engine**
Fluid
**CHEVRON DELO 400 MULTIGRADE 15W40 (--- LTR)**

## 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 | | **GFL0113731** | GFL0111103 | GFL0111093 |
| Sample Date | | Client Info | | **11 Apr 2024** | 19 Feb 2024 | 26 Jan 2024 |
| Machine Age | hrs | Client Info | | **12375** | 11997 | 11827 |
| Oil Age | hrs | Client Info | | **1518** | 1140 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| 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 | >110 | **5** | 10 | 5 |
| Chromium | ppm | ASTM D5185m | >4 | **0** | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **2** | 4 | 4 |
| Lead | ppm | ASTM D5185m | >45 | **<1** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >85 | **<1** | 4 | 0 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 151 | **5** | 12 | 16 |
| Barium | ppm | ASTM D5185m | 0.4 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 250 | **68** | 71 | 88 |
| Manganese | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | 0 | **857** | 824 | 899 |
| Calcium | ppm | ASTM D5185m | 2046 | **1031** | 1114 | 1023 |
| Phosphorus | ppm | ASTM D5185m | 1043 | **958** | 971 | 971 |
| Zinc | ppm | ASTM D5185m | 943 | **1119** | 1168 | 1212 |
| Sulfur | ppm | ASTM D5185m | 5012 | **3256** | 3151 | 2974 |

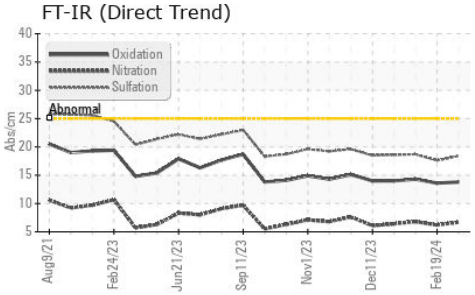
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **2** | 6 | 3 |
| Sodium | ppm | ASTM D5185m | | **11** | 3 | 1 |
| Potassium | ppm | ASTM D5185m | >20 | **24** | 13 | 8 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.2** | 0.2 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.7** | 6.2 | 6.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **18.4** | 17.6 | 18.7 |

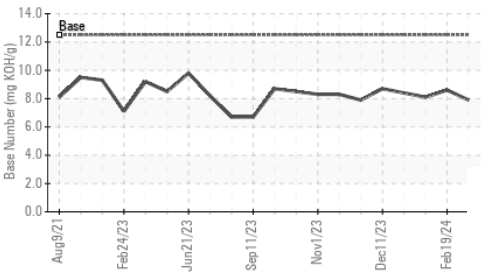
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.8** | 13.6 | 14.3 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 12.5 | **7.9** | 8.6 | 8.1 |

# OIL ANALYSIS REPORT

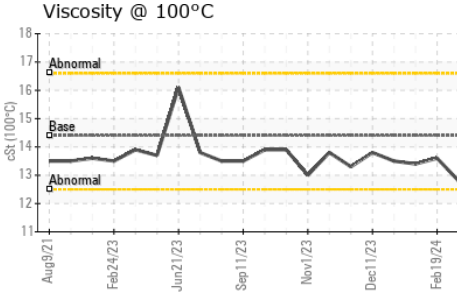
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

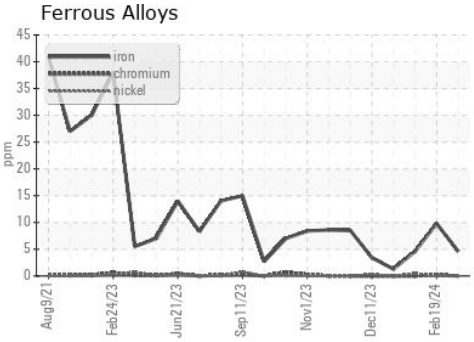



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

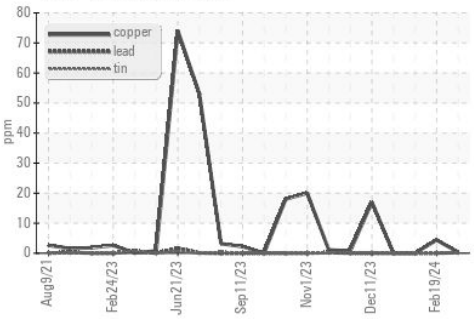
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **12.8** | 13.6 | 13.4 |

## GRAPHS

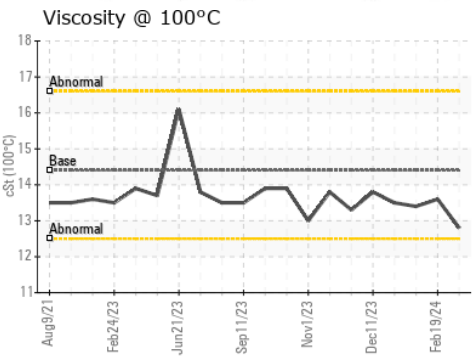
Ferrous Alloys



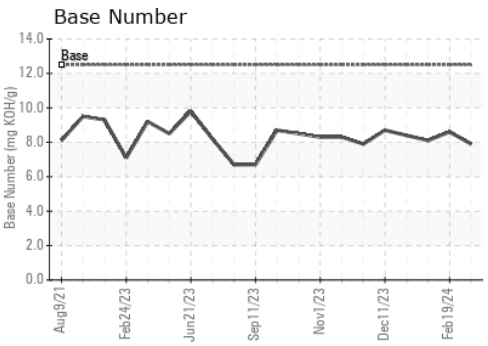

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0113731
**Lab Number** : 06150913
**Unique Number** : 10980991
**Test Package** : FLEET

**Received** : 16 Apr 2024
**Tested** : 17 Apr 2024
**Diagnosed** : 18 Apr 2024 - Sean Felton

*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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