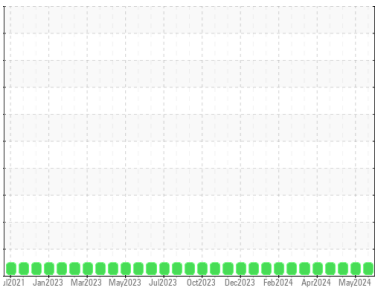
# OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
**928052-172553**
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 | | **GFL0115773** | GFL0115793 | GFL0115785 |
| Sample Date | | Client Info | | **21 Jun 2024** | 31 May 2024 | 13 May 2024 |
| Machine Age | hrs | Client Info | | **18929** | 18770 | 18649 |
| Oil Age | hrs | Client Info | | **536** | 377 | 256 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Not Changd |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Fuel | WC Method | >3.0 | **<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 | >120 | **12** | 11 | 10 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | 3 |
| Nickel | ppm | ASTM D5185m | >5 | **0** | <1 | 2 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | <1 | 2 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 3 |
| Aluminum | ppm | ASTM D5185m | >20 | **3** | 3 | 5 |
| Lead | ppm | ASTM D5185m | >40 | **0** | 0 | 3 |
| Copper | ppm | ASTM D5185m | >330 | **1** | 21 | 3 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | 3 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 2 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 2 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 151 | **15** | 14 | 21 |
| Barium | ppm | ASTM D5185m | 0.4 | **0** | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | 250 | **84** | 77 | 71 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 3 |
| Magnesium | ppm | ASTM D5185m | 0 | **1089** | 866 | 817 |
| Calcium | ppm | ASTM D5185m | 2046 | **1378** | 1130 | 1076 |
| Phosphorus | ppm | ASTM D5185m | 1043 | **1180** | 832 | 929 |
| Zinc | ppm | ASTM D5185m | 943 | **1464** | 1097 | 1091 |
| Sulfur | ppm | ASTM D5185m | 5012 | **4238** | 2659 | 3212 |

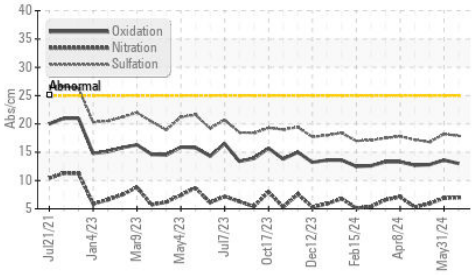
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **6** | 6 | 7 |
| Sodium | ppm | ASTM D5185m | | **5** | 4 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 4 | 4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >4 | **0.5** | 0.3 | 0.3 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.0** | 6.9 | 5.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **17.9** | 18.2 | 16.8 |

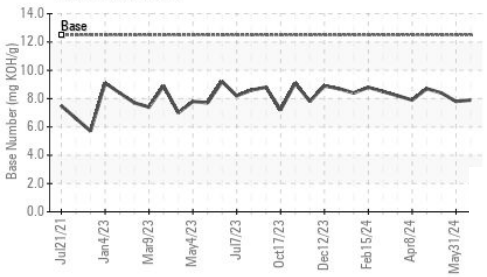
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **13.0** | 13.6 | 12.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 12.5 | **7.9** | 7.8 | 8.4 |

# OIL ANALYSIS REPORT

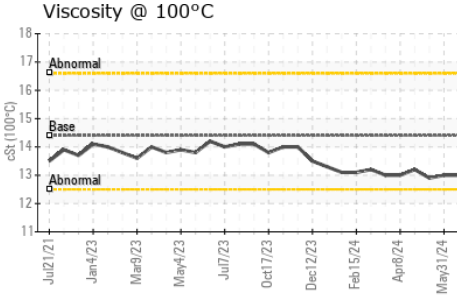
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

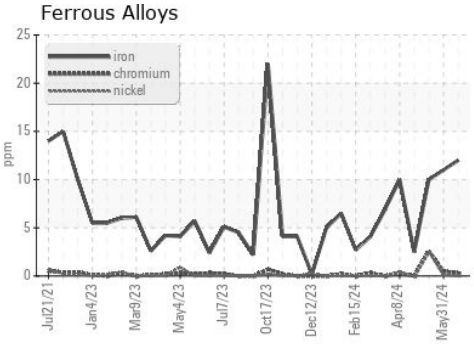



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

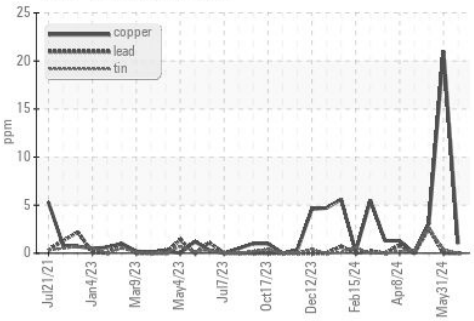
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **13.0** | 13.0 | 12.9 |

## GRAPHS

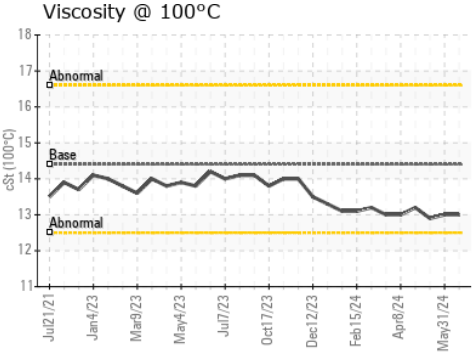
Ferrous Alloys



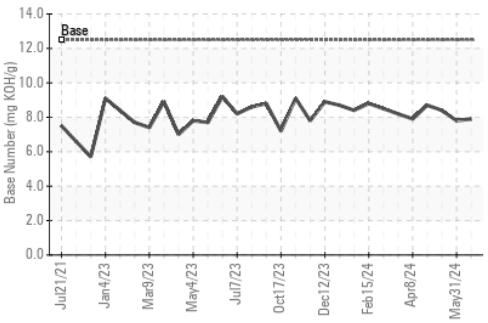

Non-ferrous Metals




Viscosity @ 100°C




Base Number




ANAB ACCREDITED TESTING LABORATORY
Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0115773
**Lab Number** : 06223203
**Unique Number** : 11101400
**Test Package** : FLEET

**Received** : 28 Jun 2024
**Tested** : 28 Jun 2024
**Diagnosed** : 30 Jun 2024 - Don Baldridge

*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: GFL180 [WUSCAR] 06223203 (Generated: 06/30/2024 11:13:30) Rev: 1
Submitted By: GFL166,GFL172,GFL180,GFL867,GFL868,GFL955 - Chelsea Bryan