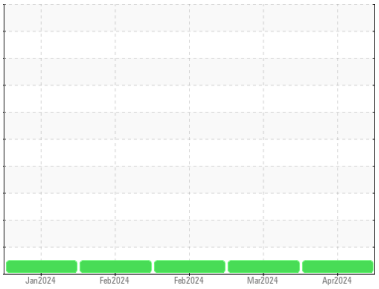
# OIL ANALYSIS REPORT

Area
**(48031UA)**
Machine Id
**834027**
Component
**Natural Gas Engine**
Fluid
**{not provided} (--- GAL)**

**Sample Rating Trend**




**NORMAL**

## DIAGNOSIS

**Recommendation**
Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**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 | | **GFL0116556** | GFL0111820 | GFL0111826 |
| Sample Date | | Client Info | | **02 Apr 2024** | 08 Mar 2024 | 27 Feb 2024 |
| Machine Age | hrs | Client Info | | **1397** | 1234 | 1148 |
| Oil Age | hrs | Client Info | | **163** | 1234 | 1148 |
| Oil Changed | | Client Info | | **Not Changd** | Changed | Not Changd |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >50 | **12** | 60 | 71 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | 1 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 2 | 3 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | **2** | 7 | 7 |
| Lead | ppm | ASTM D5185m | >30 | **0** | 4 | 5 |
| Copper | ppm | ASTM D5185m | >35 | **2** | 13 | 15 |
| Tin | ppm | ASTM D5185m | >4 | **0** | 3 | 3 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **21** | 10 | 4 |
| Barium | ppm | ASTM D5185m | | **0** | 2 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **51** | 64 | 65 |
| Manganese | ppm | ASTM D5185m | | **2** | 12 | 15 |
| Magnesium | ppm | ASTM D5185m | | **631** | 867 | 1057 |
| Calcium | ppm | ASTM D5185m | | **1687** | 1537 | 1729 |
| Phosphorus | ppm | ASTM D5185m | | **776** | 864 | 859 |
| Zinc | ppm | ASTM D5185m | | **1012** | 1084 | 1241 |
| Sulfur | ppm | ASTM D5185m | | **3020** | 2899 | 2717 |

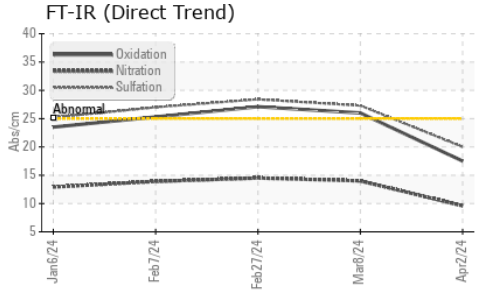
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **5** | 22 | 27 |
| Sodium | ppm | ASTM D5185m | | **5** | 8 | 28 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 20 | 20 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.6** | 14.0 | 14.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **20.0** | 27.3 | 28.4 |

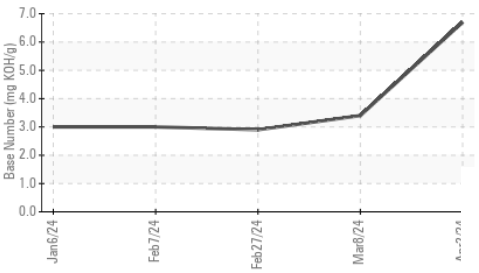
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **17.5** | 26.0 | 27.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **6.7** | 3.4 | 2.9 |

# OIL ANALYSIS REPORT

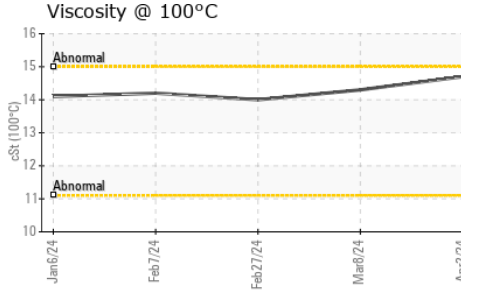
FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

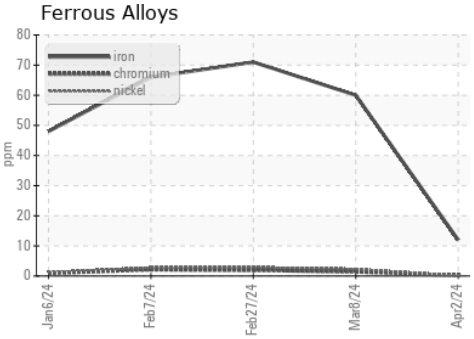



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

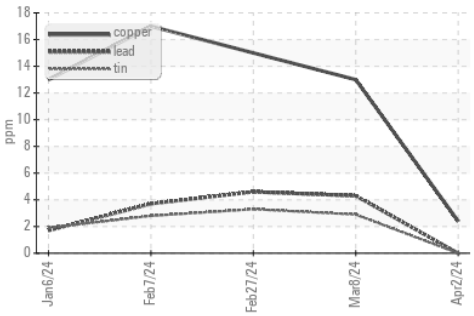
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **14.7** | 14.3 | 14.0 |

## GRAPHS

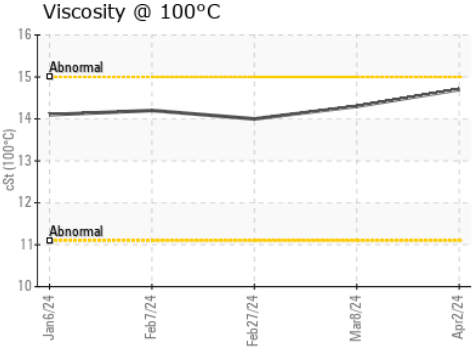
Ferrous Alloys



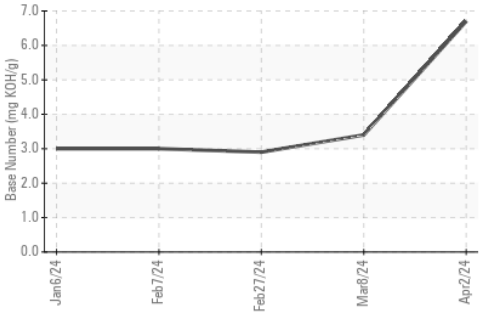

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0116556
**Lab Number** : 06138414
**Unique Number** : 10963222
**Test Package** : FLEET

**Received** : 04 Apr 2024
**Tested** : 05 Apr 2024
**Diagnosed** : 05 Apr 2024 - Wes Davis

**GFL Environmental - 652 - Fredericksburg Hauling**
10954 Houser Drive
Fredericksburg, VA
US 22408
Contact: WILLIAM MILO
wmilo@gflenv.com
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)*

Report Id: GFL652 [WUSCAR] 06138414 (Generated: 04/05/2024 04:37:55) Rev: 1

Submitted By: TECHNICIAN ACCOUNT