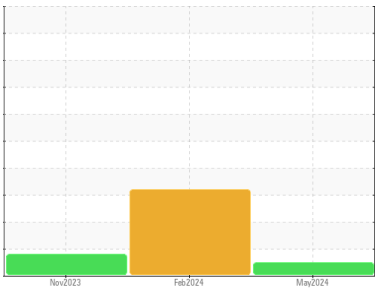
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
## 827073 PETERBILT 320
Component
**Diesel Engine**
Fluid
**TIER 15W40 (--- GAL)**

## 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 | | **GFL0115305** | GFL0061432 | GFL0061440 |
| Sample Date | | Client Info | | **20 May 2024** | 26 Feb 2024 | 13 Nov 2023 |
| Machine Age | hrs | Client Info | | **25379** | 20376 | 20376 |
| Oil Age | hrs | Client Info | | **5003** | 500 | 600 |
| Oil Changed | | Client Info | | **Changed** | Not Changd | Changed |
| Sample Status | | | | **NORMAL** | SEVERE | 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 | >110 | **32** | 46 | 66 |
| Chromium | ppm | ASTM D5185m | >4 | **1** | 1 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **8** | 2 | 3 |
| Lead | ppm | ASTM D5185m | >45 | **<1** | <1 | 10 |
| Copper | ppm | ASTM D5185m | >85 | **2** | <1 | 3 |
| Tin | ppm | ASTM D5185m | >4 | **1** | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **3** | 8 | 5 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | <1 |
| Molybdenum | ppm | ASTM D5185m | | **25** | 54 | 68 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **250** | 857 | 1004 |
| Calcium | ppm | ASTM D5185m | | **1396** | 1033 | 1216 |
| Phosphorus | ppm | ASTM D5185m | | **644** | 1001 | 1083 |
| Zinc | ppm | ASTM D5185m | | **899** | 1207 | 1373 |
| Sulfur | ppm | ASTM D5185m | | **2369** | 2864 | 3542 |

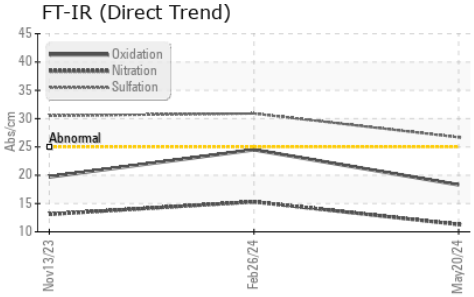
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >30 | **8** | 5 | 6 |
| Sodium | ppm | ASTM D5185m | | **12** | 4 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **9** | 1 | 4 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **2.8** | ▲ 5.1 | ▲ 4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **11.3** | 15.3 | 13.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **26.7** | 30.9 | 30.5 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **18.3** | 24.5 | 19.7 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **4.7** | ▲ 0.0 | 5.2 |

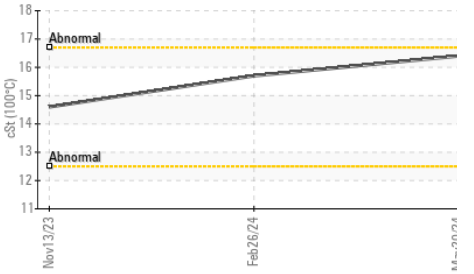
# OIL ANALYSIS REPORT

FT-IR (Direct Trend)




Base Number


Viscosity @ 100°C

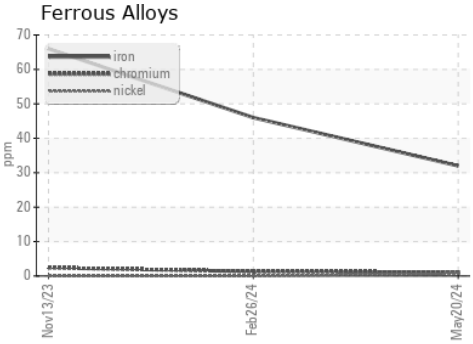



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

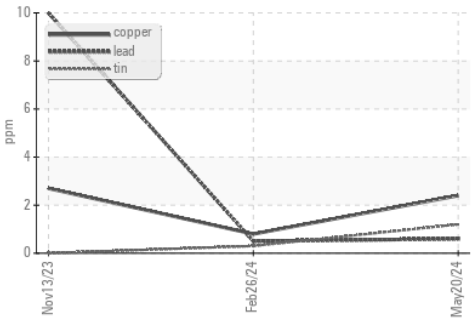
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **16.4** | 15.7 | 14.6 |

## GRAPHS

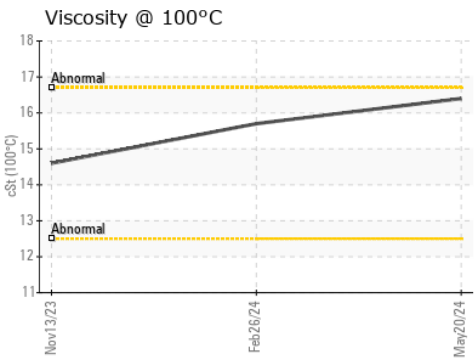
Ferrous Alloys



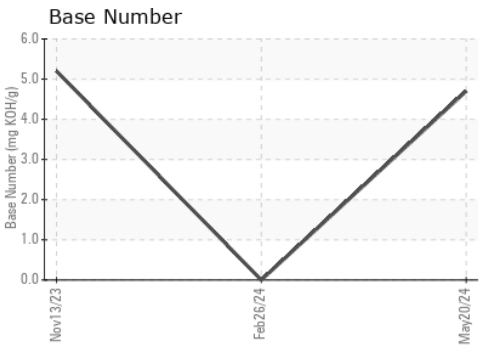

Non-ferrous Metals




Viscosity @ 100°C




Base Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0115305
**Lab Number** : 06189986
**Unique Number** : 11046738
**Test Package** : FLEET

**Received** : 23 May 2024
**Tested** : 25 May 2024
**Diagnosed** : 29 May 2024 - Don Baldridge

Certificate L2367

**GFL Environmental - 642- Grand Rapids Hauling**
5826 Alden Nash Ave SE
Lowell, MI
US 49331
Contact: Josh Arnett
joshuaarnett@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: GFL642 [WUSCAR] 06189986 (Generated: 05/29/2024 15:08:40) Rev: 1

Submitted By: See also GFL642B - Jessica Shearer