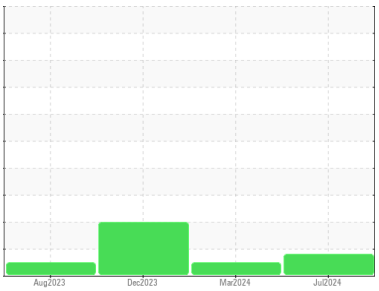
# OIL ANALYSIS REPORT

Sample Rating Trend




**WEAR**

Machine Id
## PETERBILT 433000
Component
**Natural Gas Engine**
Fluid
**{not provided} (--- GAL)**

## DIAGNOSIS

**▲ Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor.

**▲ Wear**
The aluminum level is abnormal. All other 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 | | **GFL0109616** | GFL0087484 | GFL0087499 |
| Sample Date | | Client Info | | **12 Jul 2024** | 06 Mar 2024 | 18 Dec 2023 |
| Machine Age | hrs | Client Info | | **708** | 319 | 220 |
| Oil Age | hrs | Client Info | | **488** | 99 | 220 |
| Oil Changed | | Client Info | | **N/A** | Not Changd | Changed |
| Sample Status | | | | **ABNORMAL** | NORMAL | ABNORMAL |

| 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 | **7** | 6 | 51 |
| Chromium | ppm | ASTM D5185m | >4 | **1** | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | ▲ **14** | 2 | ▲ 21 |
| Lead | ppm | ASTM D5185m | >30 | **0** | 0 | 2 |
| Copper | ppm | ASTM D5185m | >35 | **1** | <1 | 9 |
| Tin | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **41** | 51 | 30 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **47** | 48 | 51 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | 4 |
| Magnesium | ppm | ASTM D5185m | | **562** | 762 | 731 |
| Calcium | ppm | ASTM D5185m | | **1473** | 1234 | 1099 |
| Phosphorus | ppm | ASTM D5185m | | **763** | 703 | 715 |
| Zinc | ppm | ASTM D5185m | | **905** | 872 | 836 |
| Sulfur | ppm | ASTM D5185m | | **2395** | 2434 | 2536 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >+100 | **8** | 8 | 96 |
| Sodium | ppm | ASTM D5185m | | **<1** | 4 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | **39** | 4 | ▲ 85 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.3** | 6.2 | 9.6 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.1** | 20.0 | 20.0 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.0** | 16.1 | 17.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.2** | 9.3 | 7.5 |

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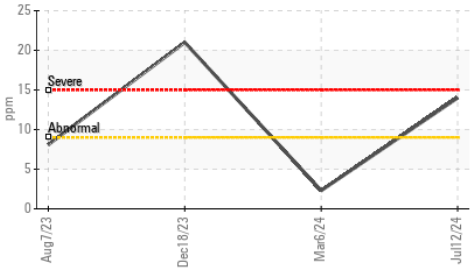
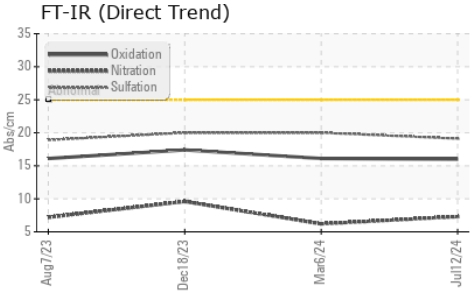
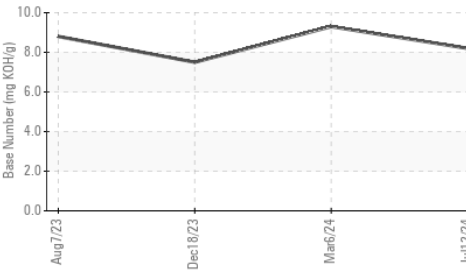
Aluminum (ppm)



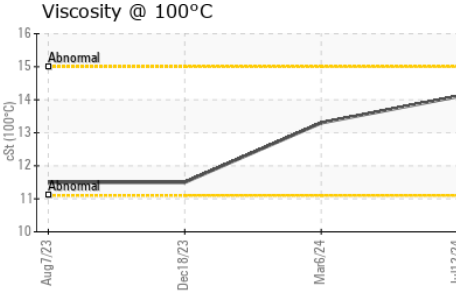

FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

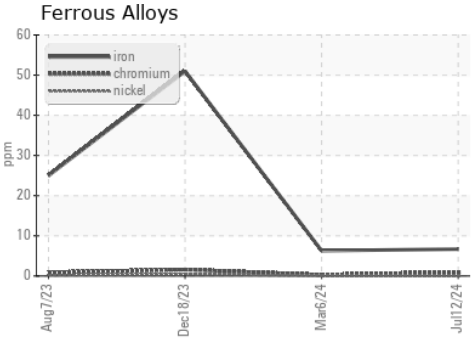



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
|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

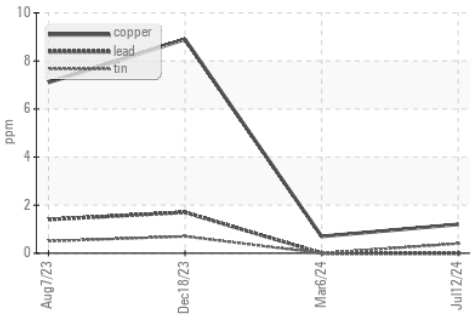
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **14.1** | 13.3 | 11.5 |

## GRAPHS

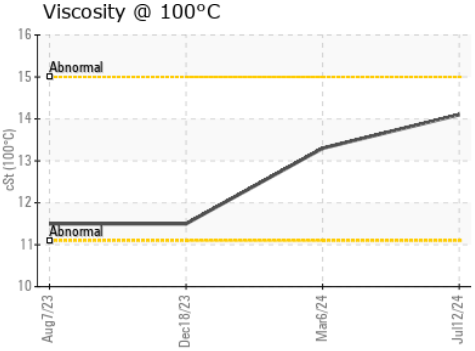
Ferrous Alloys



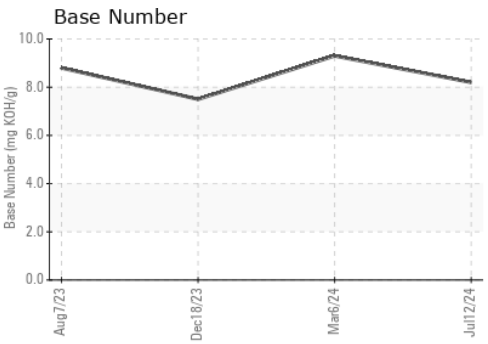

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : GFL0109616
**Lab Number** : 06239858
**Unique Number** : 11128692
**Test Package** : FLEET

**Received** : 18 Jul 2024
**Tested** : 18 Jul 2024
**Diagnosed** : 19 Jul 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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