



| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |



Area
(34748UA)
Machine Id
811061
Component
Main Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 40 (--- GAL)

RECOMMENDATION

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

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | GFL0127183 | GFL0122010 | GFL0122066 |
| Sample Date | | Client Info | | 10 Jul 2024 | 25 Jun 2024 | 30 May 2024 |
| Machine Age | hrs | Client Info | | 7882 | 7755 | 7530 |
| Oil Age | hrs | Client Info | | 7147 | 7245 | 7159 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Changed | Not Changd | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >120 | 14 | 9 | 7 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 3 | 4 | 2 |
| Lead | ppm | ASTM D5185m | >40 | 3 | 2 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 2 | 2 | <1 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

There is no indication of any contamination in the oil.

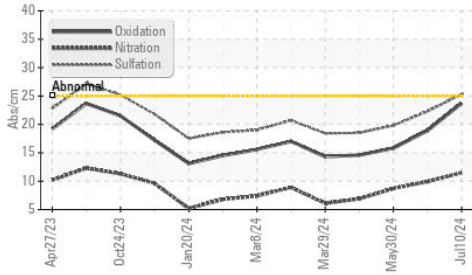
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 5 | 5 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 4 | 3 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >4 | 0.3 | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 11.5 | 9.9 | 8.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 25.3 | 22.3 | 19.8 |
| 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 |

FLUID CONDITION

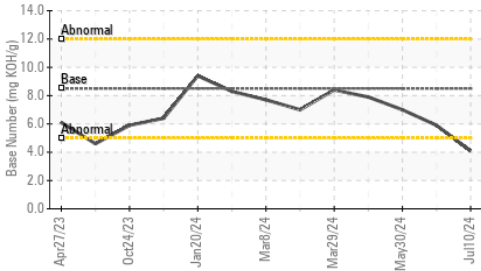
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | >216 | 0 | 5 | <1 |
| Boron | ppm | ASTM D5185m | 250 | 12 | 12 | 17 |
| Barium | ppm | ASTM D5185m | 10 | <1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 67 | 62 | 61 |
| Manganese | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | 450 | 948 | 1000 | 893 |
| Calcium | ppm | ASTM D5185m | 3000 | 1271 | 1210 | 1123 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 1008 | 1182 | 1033 |
| Zinc | ppm | ASTM D5185m | 1350 | 1332 | 1419 | 1263 |
| Sulfur | ppm | ASTM D5185m | 4250 | 2634 | 3493 | 3210 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 23.7 | 18.9 | 15.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 4.1 | 5.9 | 7.0 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 14.3 | 14.0 | 14.1 |

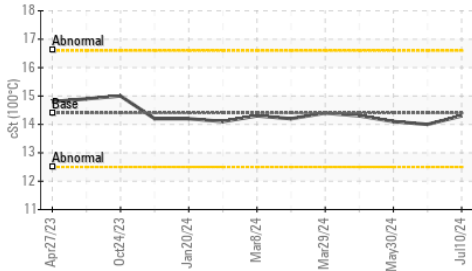
FT-IR (Direct Trend)



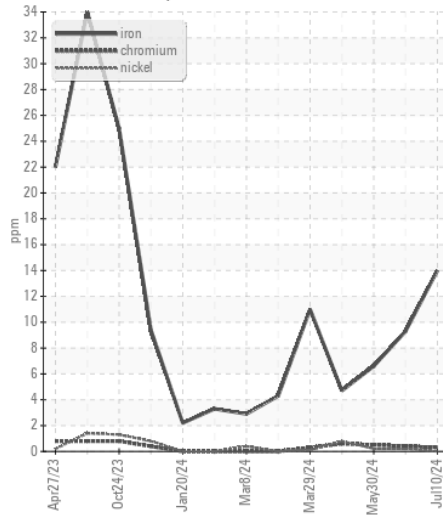
Base Number



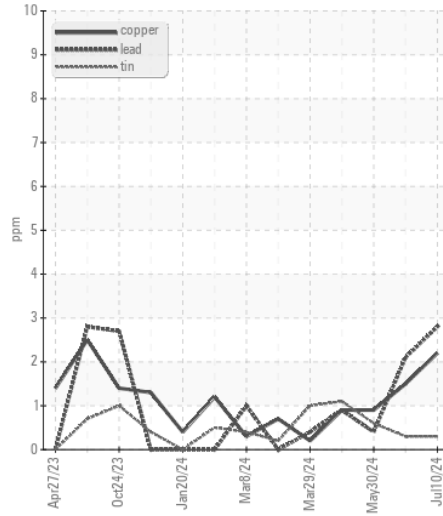
Viscosity @ 100°C



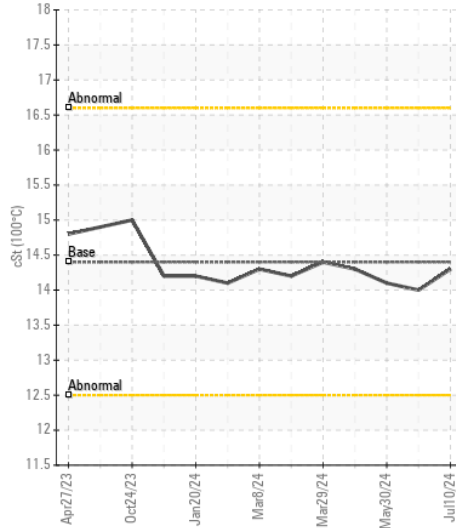
Ferrous Alloys



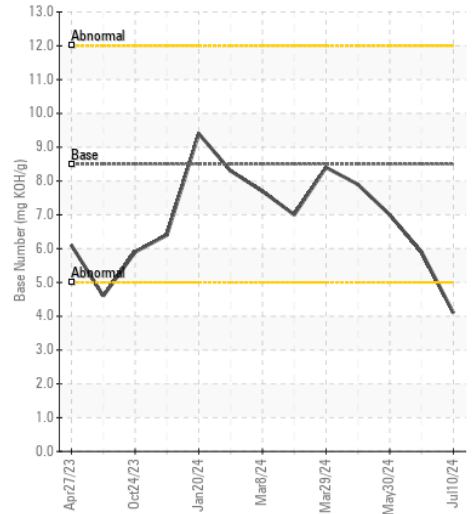
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0127183
Lab Number : 06235549
Unique Number : 11124383
Test Package : FLEET

Received : 15 Jul 2024
Tested : 15 Jul 2024
Diagnosed : 15 Jul 2024 - Wes Davis

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

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)

T:
F: