# OIL ANALYSIS REPORT

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

Machine Id
**8464545**
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 10W30 (--- GAL)**

## RECOMMENDATION

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

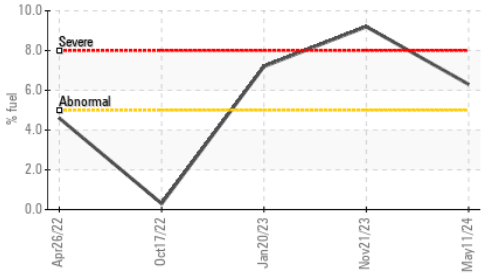
There is a moderate amount of fuel present in the oil.

## FLUID CONDITION

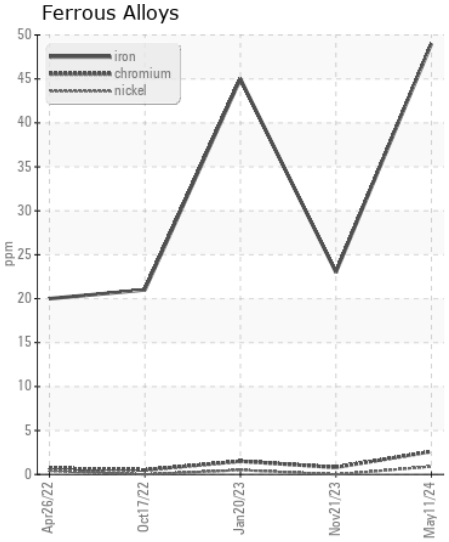
Fuel is present in the oil and is lowering the viscosity. The BN level is low.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | RPL0020600 | RPL0016002 | RPL0009305 |
| Sample Date | | Client Info | | 11 May 2024 | 21 Nov 2023 | 20 Jan 2023 |
| Machine Age | mls | Client Info | | 20000 | 0 | 0 |
| Oil Age | mls | Client Info | | 20000 | 8906 | 18177 |
| Filter Age | mls | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | Not Changd | Not Changd |
| Filter Changed | | Client Info | | Changed | N/A | N/A |
| Sample Status | | | | ABNORMAL | SEVERE | ABNORMAL |
| Iron | ppm | ASTM D5185m | >100 | 49 | 23 | 45 |
| Chromium | ppm | ASTM D5185m | >20 | 3 | <1 | 2 |
| Nickel | ppm | ASTM D5185m | >4 | <1 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 1 | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 38 | 17 | 51 |
| Lead | ppm | ASTM D5185m | >40 | 2 | 0 | 2 |
| Copper | ppm | ASTM D5185m | >330 | 6 | 4 | 6 |
| Tin | ppm | ASTM D5185m | >15 | 2 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >25 | 12 | 7 | 10 |
| Potassium | ppm | ASTM D5185m | >20 | 85 | 37 | 116 |
| Fuel | % | ASTM D3524 | >5 | ▲ 6.3 | ▲ 9.2 | ▲ 7.2 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.4 | 0.3 | 0.6 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 12.2 | 9.3 | 10.9 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 31.4 | 26.5 | 28.2 |
| 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 |
| Sodium | ppm | ASTM D5185m | | 5 | <1 | 4 |
| Boron | ppm | ASTM D5185m | 250 | 30 | 33 | 25 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 58 | 49 | 41 |
| Manganese | ppm | ASTM D5185m | | 2 | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | 450 | 602 | 517 | 227 |
| Calcium | ppm | ASTM D5185m | 3000 | 2187 | 1856 | 2048 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 842 | 900 | 875 |
| Zinc | ppm | ASTM D5185m | 1350 | 1214 | 1047 | 1090 |
| Sulfur | ppm | ASTM D5185m | 4250 | 3393 | 3047 | 4259 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 41.3 | 30.4 | 24.4 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | ▲ 3.5 | 6.7 | 5.7 |
| Visc @ 100°C | cSt | ASTM D445 | 10.9 | ▲ 10.2 | ▲ 10.7 | ▲ 11.15 |

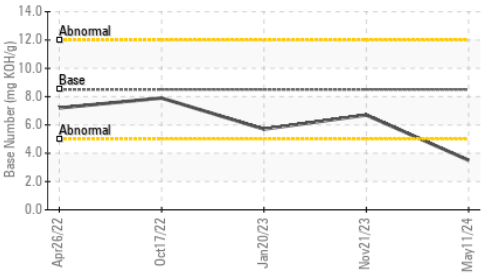
Fuel Dilution



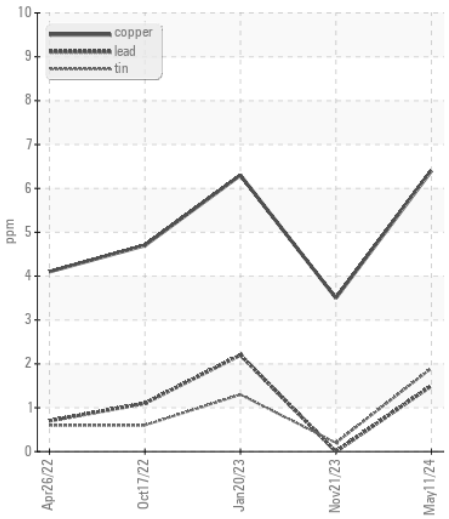

Ferrous Alloys



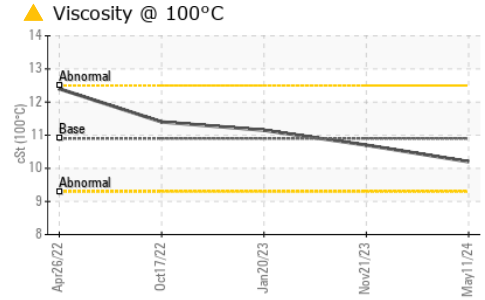

Base Number



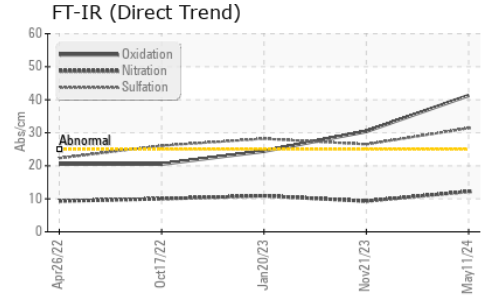

Non-ferrous Metals



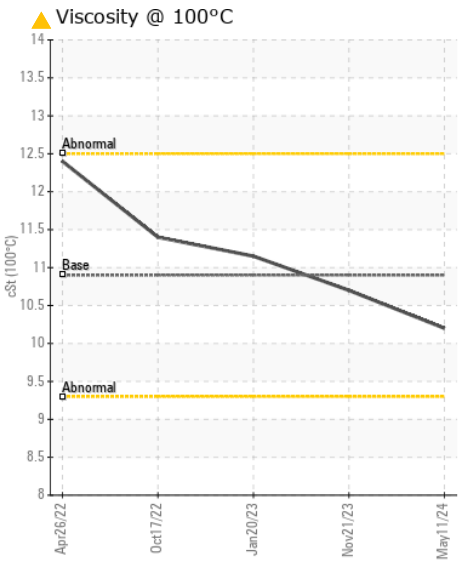

Viscosity @ 100°C



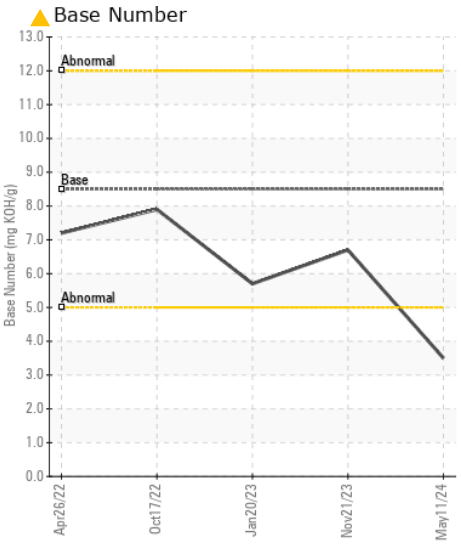

FT-IR (Direct Trend)




Viscosity @ 100°C




Base Number




**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RPL0020600
**Lab Number** : 06190289
**Unique Number** : 11047041
**Test Package** : FLEET ( Additional Tests: PercentFuel )

**Received** : 24 May 2024
**Tested** : 30 May 2024
**Diagnosed** : 30 May 2024 - Jonathan Hester

Certificate L2367

*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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