# OIL ANALYSIS REPORT

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

Machine Id
**43566**
Component
**Diesel Engine**
Fluid
**SHELL 15W40 (--- GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

## WEAR

Metal levels are typical for a new component breaking in.

## CONTAMINATION

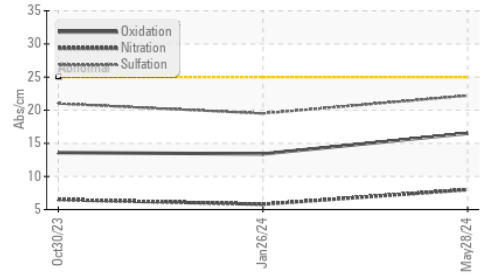
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

## FLUID CONDITION

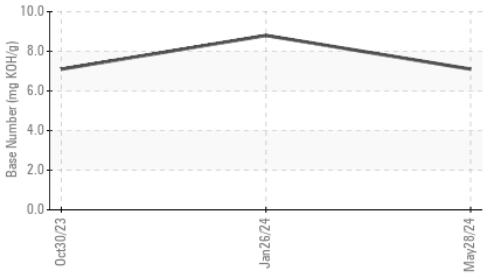
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0904494** | WC0795618 | WC0861076 |
| Sample Date | | Client Info | | **28 May 2024** | 26 Jan 2024 | 30 Oct 2023 |
| Machine Age | mls | Client Info | | **63299** | 42792 | 35720 |
| Oil Age | mls | Client Info | | **20000** | 25000 | 30000 |
| Filter Age | mls | Client Info | | **20000** | 25000 | 30000 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Filter Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **NORMAL** | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | **12** | 9 | 12 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | **<1** | 1 | 2 |
| Titanium | ppm | ASTM D5185m | | **<1** | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | **0** | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | **13** | 4 | 9 |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | **185** | 130 | 371 |
| Tin | ppm | ASTM D5185m | >15 | **2** | 3 | 6 |
| 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 | **3** | 5 | 4 |
| Potassium | ppm | ASTM D5185m | >20 | **20** | 11 | 18 |
| Fuel | | WC Method | >5 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | **0.5** | 0.2 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.0** | 5.8 | 6.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **22.2** | 19.5 | 21.0 |
| 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 | >150 | **<1** | 0 | 2 |
| Boron | ppm | ASTM D5185m | | **139** | 56 | 288 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **80** | 71 | 73 |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | **563** | 895 | 394 |
| Calcium | ppm | ASTM D5185m | | **1410** | 1098 | 1299 |
| Phosphorus | ppm | ASTM D5185m | | **1008** | 931 | 1027 |
| Zinc | ppm | ASTM D5185m | | **1213** | 1269 | 1184 |
| Sulfur | ppm | ASTM D5185m | | **2433** | 3118 | 2974 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.5** | 13.4 | 13.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **7.1** | 8.8 | 7.1 |
| Visc @ 100°C | cSt | ASTM D445 | | **13.5** | 13.3 | 13.3 |

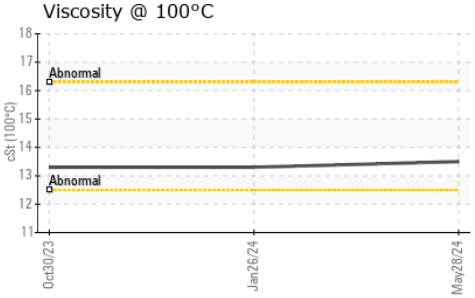
FT-IR (Direct Trend)



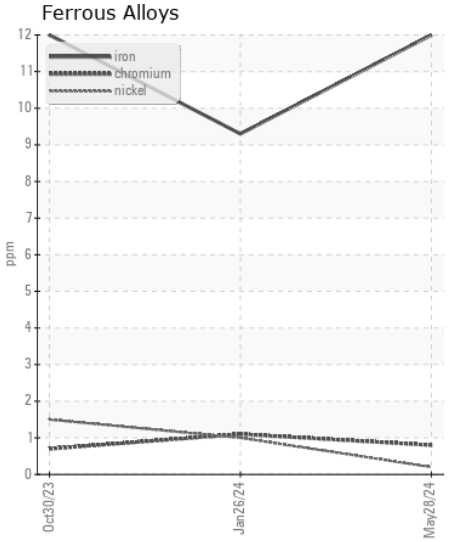

Base Number



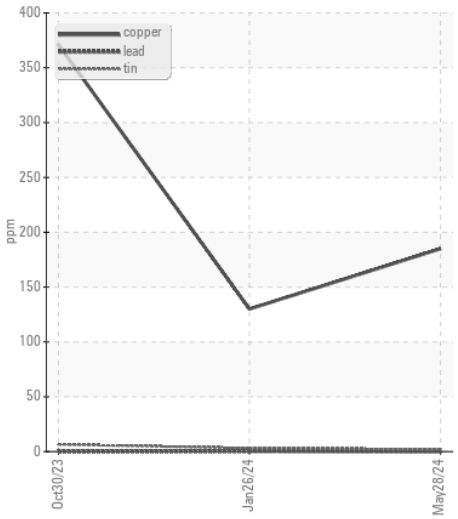

Viscosity @ 100°C



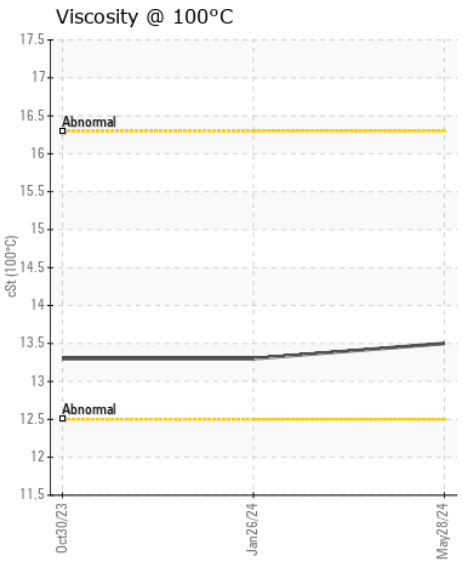

Ferrous Alloys



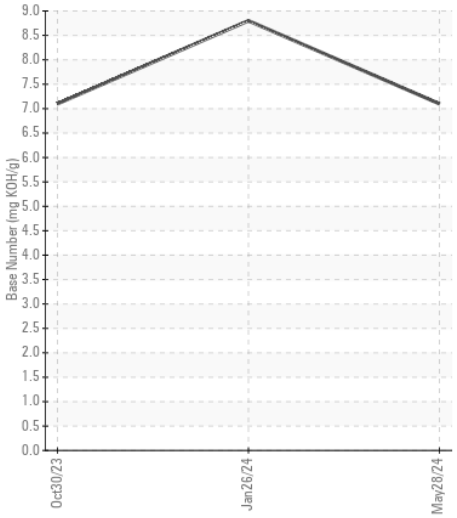

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0904494
**Lab Number** : 06234738
**Unique Number** : 11123572
**Test Package** : FLEET

**Received** : 12 Jul 2024
**Tested** : 15 Jul 2024
**Diagnosed** : 15 Jul 2024 - Wes Davis

*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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