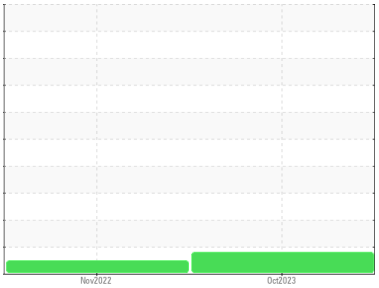
# OIL ANALYSIS REPORT

Sample Rating Trend




**FUEL**

Machine Id
## INTERNATIONAL 441404
Component
**Diesel Engine**
Fluid
**{not provided} (20 QTS)**

## DIAGNOSIS

**Recommendation**

No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**

All component wear rates are normal.

**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. Light fuel dilution occurring. No other contaminants were detected 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 | | **IL0030504** | IL0026630 | --- |
| Sample Date | | Client Info | | **31 Oct 2023** | 19 Nov 2022 | --- |
| Machine Age | hrs | Client Info | | **30001** | 17462 | --- |
| Oil Age | hrs | Client Info | | **30001** | 17462 | --- |
| Oil Changed | | Client Info | | **N/A** | N/A | --- |
| Sample Status | | | | **MARGINAL** | NORMAL | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | NEG | --- |
| Glycol | | WC Method | | **NEG** | NEG | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >90 | **33** | 51 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **2** | 1 | --- |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | --- |
| Titanium | ppm | ASTM D5185m | >2 | **0** | <1 | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **35** | 15 | --- |
| Lead | ppm | ASTM D5185m | >40 | **0** | <1 | --- |
| Copper | ppm | ASTM D5185m | >330 | **3** | 4 | --- |
| Tin | ppm | ASTM D5185m | >15 | **<1** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **7** | 65 | --- |
| Barium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | | **62** | 43 | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | 1 | --- |
| Magnesium | ppm | ASTM D5185m | | **962** | 534 | --- |
| Calcium | ppm | ASTM D5185m | | **1106** | 1576 | --- |
| Phosphorus | ppm | ASTM D5185m | | **1049** | 738 | --- |
| Zinc | ppm | ASTM D5185m | | **1248** | 898 | --- |
| Sulfur | ppm | ASTM D5185m | | **3160** | 2804 | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **8** | 10 | --- |
| Sodium | ppm | ASTM D5185m | | **3** | 2 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **91** | 38 | --- |
| Fuel | % | ASTM D3524 | >3.0 | ▲ **1.6** | <1.0 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >6 | **0.4** | 0.2 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **8.5** | 6.5 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **19.9** | 23.2 | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **16.2** | 20.6 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.9** | 11.5 | --- |

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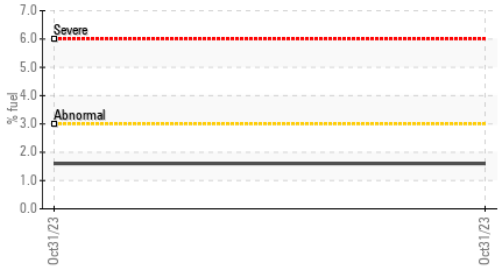
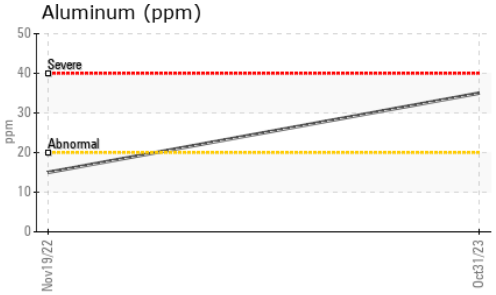
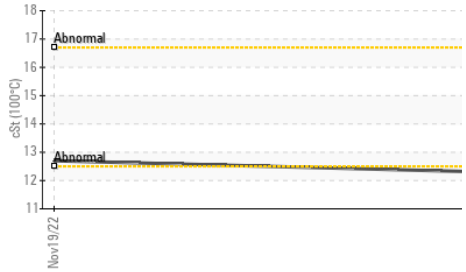
Fuel Dilution



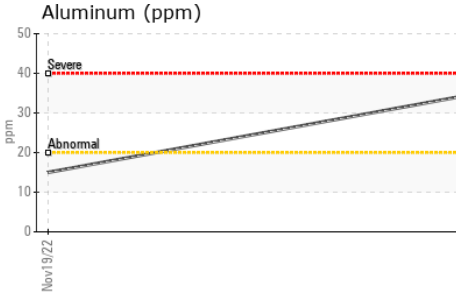

Aluminum (ppm)




Viscosity @ 100°C




Aluminum (ppm)

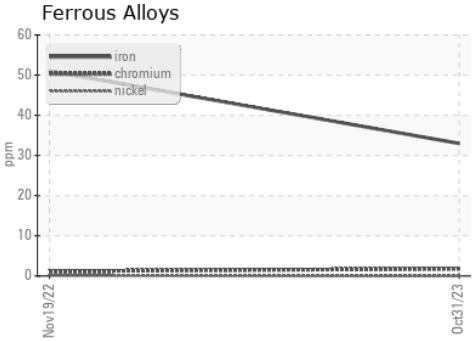



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Debris | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Odor | scalar | *Visual | NORML | **NORML** | NORML | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | NEG | --- |
| Free Water | scalar | *Visual | | **NEG** | NEG | --- |

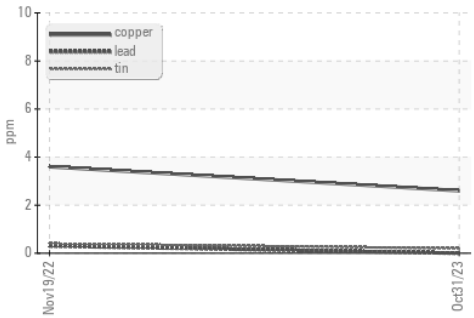
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **12.3** | 12.7 | --- |

## GRAPHS

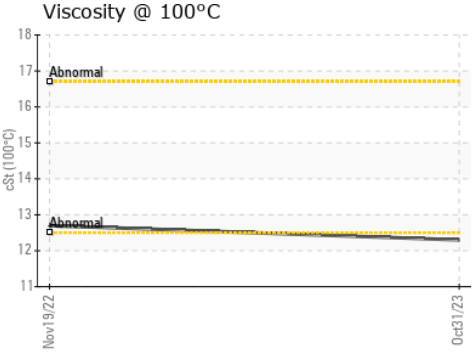
Ferrous Alloys



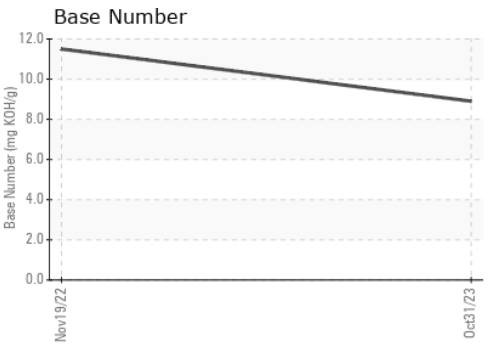

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : IL0030504 **Recieved** : 18 Jan 2024
**Lab Number** : 06064840 **Diagnosed** : 23 Jan 2024
**Unique Number** : 10836222 **Diagnostician** : Wes Davis
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

*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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