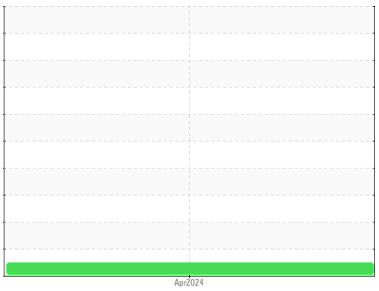
# OIL ANALYSIS REPORT

Sample Rating Trend




NORMAL

Machine Id
**W1**
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 15W40 (--- QTS)**

## DIAGNOSIS

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

**Wear**
All 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 | | **RW0005555** | --- | --- |
| Sample Date | | Client Info | | **02 Apr 2024** | --- | --- |
| Machine Age | hrs | Client Info | | **2191** | --- | --- |
| Oil Age | hrs | Client Info | | **167** | --- | --- |
| Oil Changed | | Client Info | | **N/A** | --- | --- |
| Sample Status | | | | **NORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >5 | **<1.0** | --- | --- |
| Water | | WC Method | >0.2 | **NEG** | --- | --- |
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **4** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **3** | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | **0** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **1** | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | **0** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **0** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **<1** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | **4** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **<1** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 250 | **11** | --- | --- |
| Barium | ppm | ASTM D5185m | 10 | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 100 | **7** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | --- | --- |
| Magnesium | ppm | ASTM D5185m | 450 | **90** | --- | --- |
| Calcium | ppm | ASTM D5185m | 3000 | **2186** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 1150 | **719** | --- | --- |
| Zinc | ppm | ASTM D5185m | 1350 | **801** | --- | --- |
| Sulfur | ppm | ASTM D5185m | 4250 | **3110** | --- | --- |

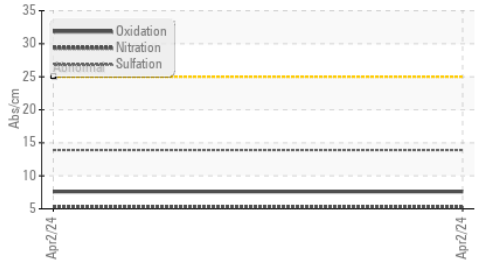
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | --- | --- |
| Sodium | ppm | ASTM D5185m | >158 | **1** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **0** | --- | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **5.3** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **13.9** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **7.6** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | **5.99** | --- | --- |

# OIL ANALYSIS REPORT

FT-IR (Direct Trend)




Base Number

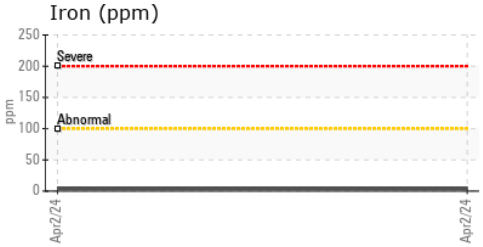

Viscosity @ 100°C


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

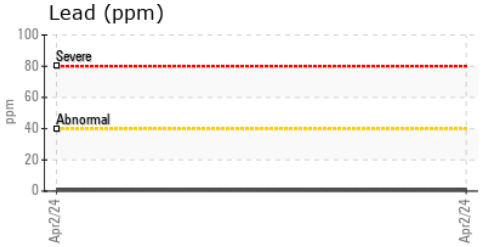
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **12.5** | --- | --- |

## GRAPHS

Iron (ppm)



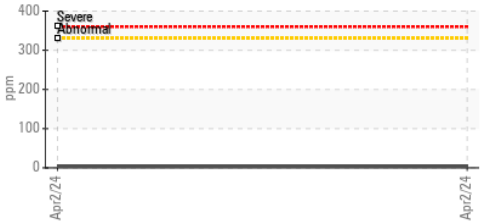

Lead (ppm)



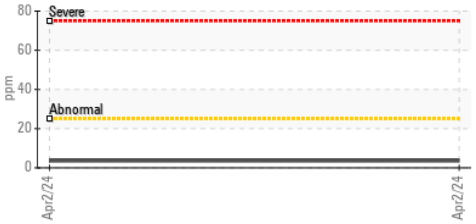

Aluminum (ppm)


Chromium (ppm)

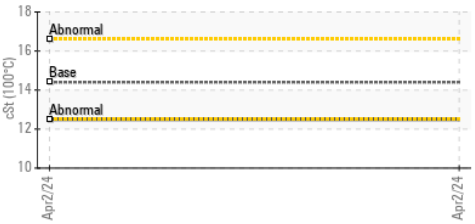

Copper (ppm)




Silicon (ppm)




Viscosity @ 100°C




Base Number


Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RW0005555
**Lab Number** : 06141541
**Unique Number** : 10966349
**Test Package** : MOB 2

**Received** : 08 Apr 2024
**Tested** : 09 Apr 2024
**Diagnosed** : 09 Apr 2024 - Wes Davis

**CITY OF SAGINAW - WATER TREATMENT DIVISION**
522 EZRA RUST DR
SAGINAW, MI
US 48601
Contact: Service Manager

*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: