# OIL ANALYSIS REPORT

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

Area
**R & M Couriers**
Machine Id
**1491095**
Component
**Diesel Engine**
Fluid
**SHELL 15W40 (48 QTS)**

## RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

## WEAR

All component wear rates are normal.

## CONTAMINATION

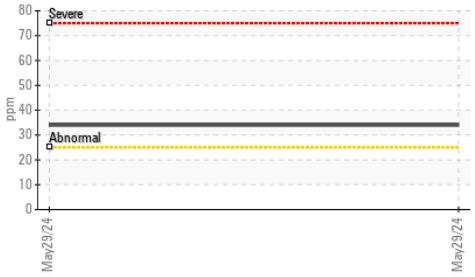
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

## FLUID CONDITION

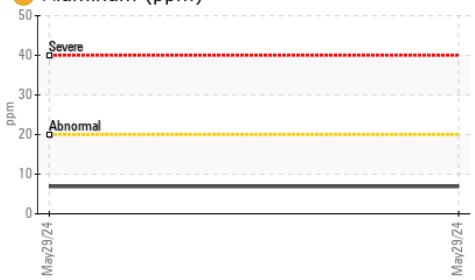
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | RPL0021158 | --- | --- |
| Sample Date | | Client Info | | 29 May 2024 | --- | --- |
| Machine Age | hrs | Client Info | | 0 | --- | --- |
| Oil Age | hrs | Client Info | | 0 | --- | --- |
| Filter Age | hrs | Client Info | | 0 | --- | --- |
| Oil Changed | | Client Info | | Not Changd | --- | --- |
| Filter Changed | | Client Info | | N/A | --- | --- |
| Sample Status | | | | ABNORMAL | --- | --- |
| Iron | ppm | ASTM D5185m | >100 | 39 | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | <1 | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | <1 | --- | --- |
| Titanium | ppm | ASTM D5185m | | <1 | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | 7 | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | 0 | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | 48 | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | <1 | --- | --- |
| Vanadium | ppm | ASTM D5185m | | 0 | --- | --- |
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Silicon | ppm | ASTM D5185m | >25 | ▲ 34 | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | 9 | --- | --- |
| Fuel | | WC Method | >5 | <1.0 | --- | --- |
| Water | | WC Method | >0.2 | NEG | --- | --- |
| Glycol | | WC Method | | NEG | --- | --- |
| Soot % | % | *ASTM D7844 | >3 | 0.3 | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 10.1 | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 23.3 | --- | --- |
| 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 | --- | --- |
| Sodium | ppm | ASTM D5185m | >150 | 5 | --- | --- |
| Boron | ppm | ASTM D5185m | | 188 | --- | --- |
| Barium | ppm | ASTM D5185m | | 7 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | 106 | --- | --- |
| Manganese | ppm | ASTM D5185m | | 7 | --- | --- |
| Magnesium | ppm | ASTM D5185m | | 685 | --- | --- |
| Calcium | ppm | ASTM D5185m | | 1453 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | 654 | --- | --- |
| Zinc | ppm | ASTM D5185m | | 790 | --- | --- |
| Sulfur | ppm | ASTM D5185m | | 2638 | --- | --- |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 20.3 | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 7.3 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | | 12.8 | --- | --- |

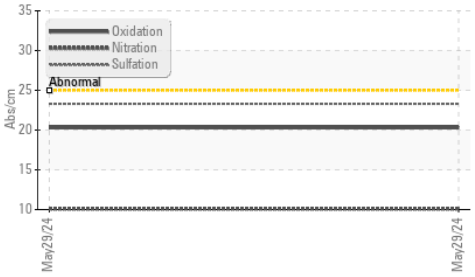
Silicon (ppm)



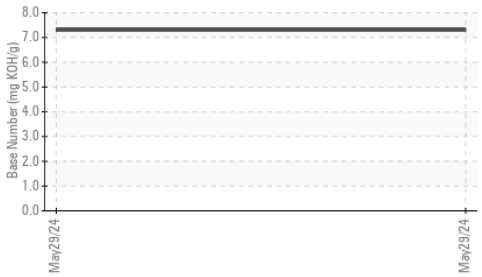

Aluminum (ppm)



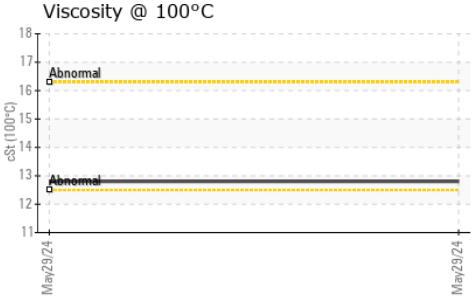

FT-IR (Direct Trend)



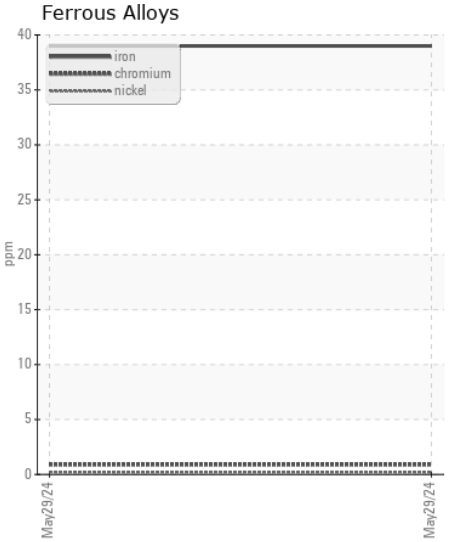

Base Number



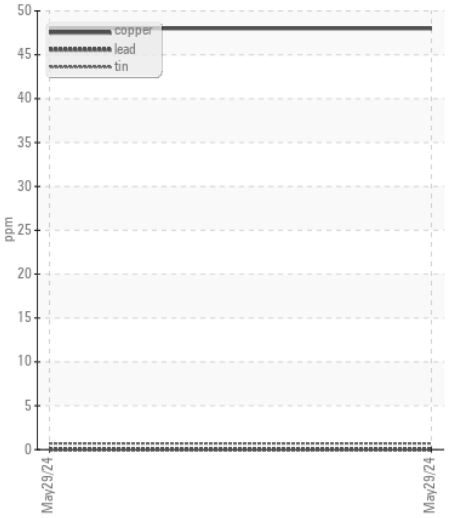

Viscosity @ 100°C



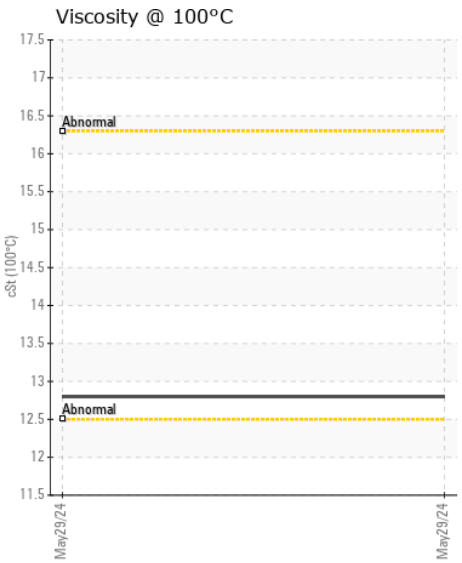

Ferrous Alloys



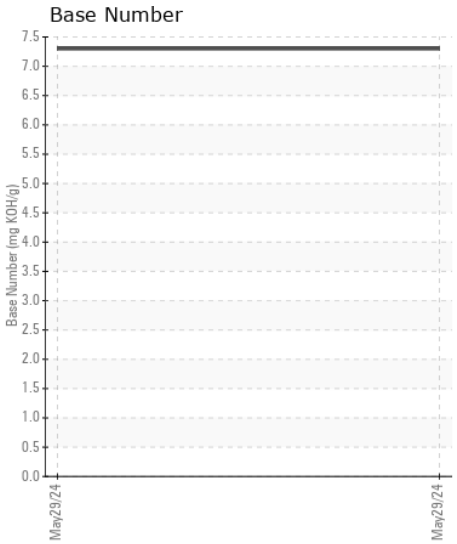

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RPL0021158
**Lab Number** : 06214397
**Unique Number** : 11087261
**Test Package** : FLEET

**Received** : 19 Jun 2024
**Tested** : 20 Jun 2024
**Diagnosed** : 21 Jun 2024 - Don Baldridge

*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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