CONST

OIL ANALYSIS REPORT

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

Area
**TMR-Pompano**
Machine Id
**17971 LIEBHERR A924 957-33753**
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 15W40 (5 GAL)**

## RECOMMENDATION

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

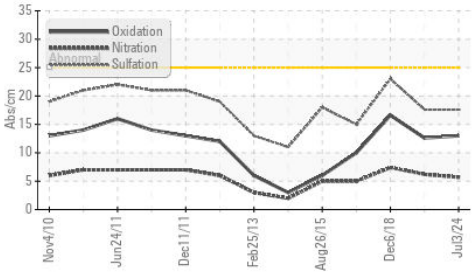
There is no indication of any contamination in the oil.

## FLUID CONDITION

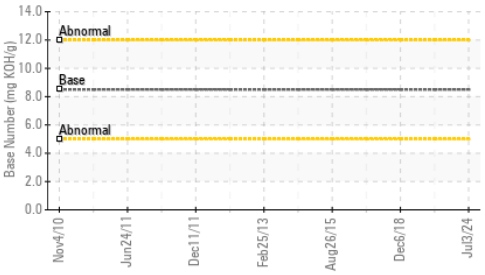
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | DJJ0023219 | DJJ0008213 | DJJ025082 |
| Sample Date | | Client Info | | 03 Jul 2024 | 14 Jan 2021 | 06 Dec 2018 |
| Machine Age | hrs | Client Info | | 0 | 9319 | 7393 |
| Oil Age | hrs | Client Info | | 0 | 0 | 250 |
| Filter Age | hrs | Client Info | | 0 | 0 | 250 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | N/A | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Iron | ppm | ASTM D5185m | >100 | 4 | 16 | 7 |
| Chromium | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >5 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | <1 | 0 |
| Aluminum | ppm | ASTM D5185m | >15 | <1 | 0 | 3 |
| Lead | ppm | ASTM D5185m | >30 | 0 | 1 | 2 |
| Copper | ppm | ASTM D5185m | >125 | <1 | <1 | 1 |
| Tin | ppm | ASTM D5185m | >5 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >60 | 5 | 6 | 8 |
| Potassium | ppm | ASTM D5185m | >20 | 1 | <1 | 3 |
| 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 | 0.2 | 0.3 | 1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 5.7 | 6.2 | 7.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 17.6 | 17.6 | 23 |
| 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 | >158 | 4 | 0 | 2 |
| Boron | ppm | ASTM D5185m | 250 | 0 | 8 | 323 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 57 | 49 | 120 |
| Manganese | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 450 | 923 | 812 | 569 |
| Calcium | ppm | ASTM D5185m | 3000 | 1093 | 1105 | 1503 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 1020 | 991 | 728 |
| Zinc | ppm | ASTM D5185m | 1350 | 1189 | 1058 | 881 |
| Sulfur | ppm | ASTM D5185m | 4250 | 3480 | 2971 | 2249 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 13.0 | 12.6 | 16.6 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 9.4 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 12.7 | 12.7 | 13.21 |

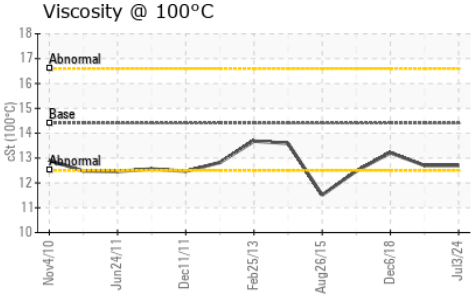
FT-IR (Direct Trend)



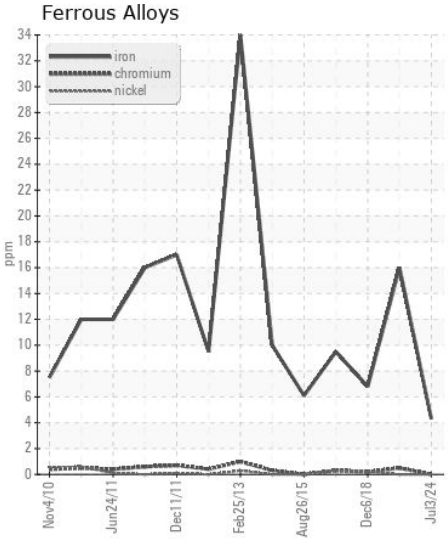

Base Number



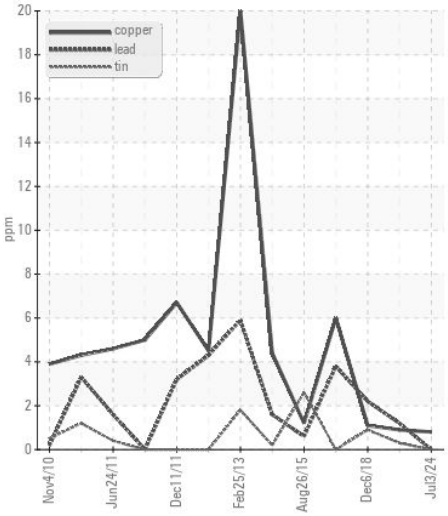

Viscosity @ 100°C



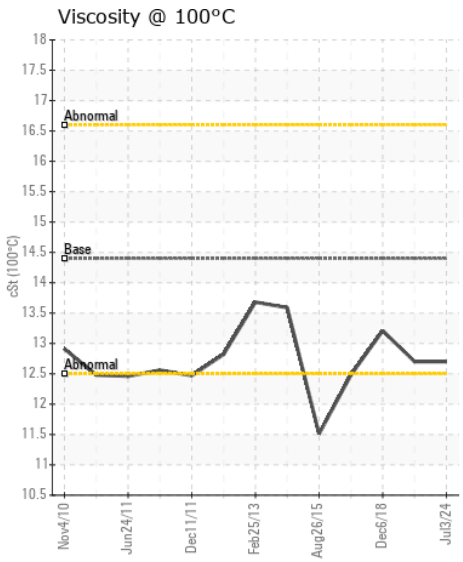

Ferrous Alloys



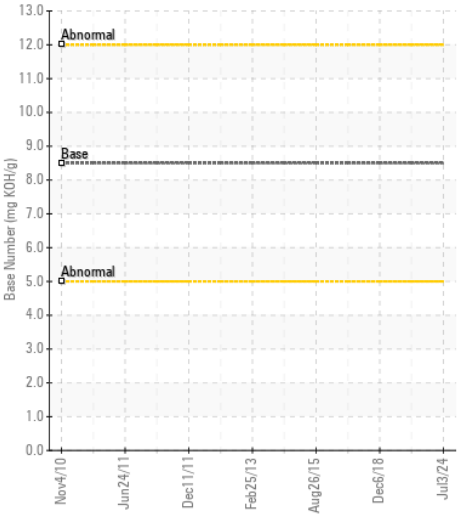

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : DJJ0023219
**Lab Number** : 06235646
**Unique Number** : 11124480
**Test Package** : CONST ( Additional Tests: TBN )

**Received** : 15 Jul 2024
**Tested** : 18 Jul 2024
**Diagnosed** : 18 Jul 2024 - Wes Davis

**TRADEMARK METALS RECYCLING - RIVIERA BEACH**
4661 DYER BLVD
WEST PALM BEACH, FL
US 33407
Contact: RYAN BOWDEN

*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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