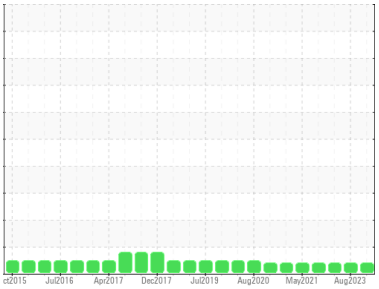
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Sample Rating Trend




VISCOSITY

Machine Id
## CATERPILLAR LOADER L-9
Component
**Diesel Engine**
Fluid
**DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

## DIAGNOSIS

**Recommendation**
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

**Wear**
All component wear rates are normal.

**Contamination**
There is no indication of any contamination in the oil.

**Fluid Condition**
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0109569** | LP0000171 | WC0542527 |
| Sample Date | | Client Info | | **02 Mar 2024** | 19 Aug 2023 | 18 Oct 2021 |
| Machine Age | hrs | Client Info | | **43884** | 42784 | 41107 |
| Oil Age | hrs | Client Info | | **500** | 500 | 500 |
| Oil Changed | | Client Info | | **Changed** | Changed | Changed |
| Sample Status | | | | **ATTENTION** | ATTENTION | ATTENTION |

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

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **37** | 35 | 19 |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **0** | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >2 | **<1** | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | **3** | <1 | 2 |
| Lead | ppm | ASTM D5185m | >40 | **1** | 2 | 4 |
| Copper | ppm | ASTM D5185m | >330 | **10** | 10 | 2 |
| Tin | ppm | ASTM D5185m | >15 | **0** | <1 | 0 |
| Antimony | ppm | ASTM D5185m | | **---** | --- | 0 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 250 | **12** | 5 | 10 |
| Barium | ppm | ASTM D5185m | 10 | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | **29** | 67 | 64 |
| Manganese | ppm | ASTM D5185m | | **0** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 450 | **287** | 1051 | 1080 |
| Calcium | ppm | ASTM D5185m | 3000 | **1964** | 1288 | 1295 |
| Phosphorus | ppm | ASTM D5185m | 1150 | **1062** | 1206 | 1110 |
| Zinc | ppm | ASTM D5185m | 1350 | **1140** | 1486 | 1283 |
| Sulfur | ppm | ASTM D5185m | 4250 | **3657** | 4241 | 4621 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | **4** | 3 | 2 |
| Sodium | ppm | ASTM D5185m | >158 | **<1** | 1 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **4** | <1 | 2 |

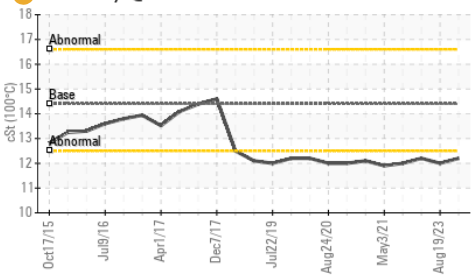
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.4** | 0.7 | 0.5 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.9** | 7.1 | 7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **16.7** | 19.4 | 19.1 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **10.7** | 14.0 | 14.2 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | **8.54** | 11.27 | 9.27 |

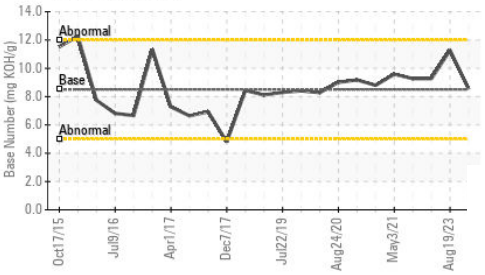
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

Viscosity @ 100°C




Base Number

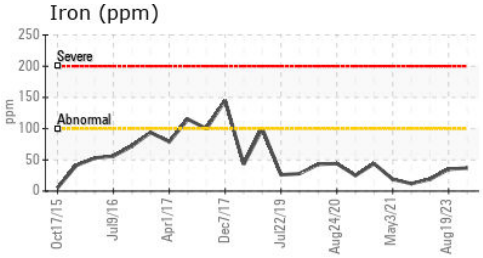



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

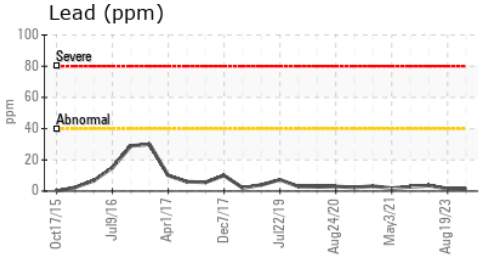
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **12.2** | 12.0 | 12.2 |

## GRAPHS

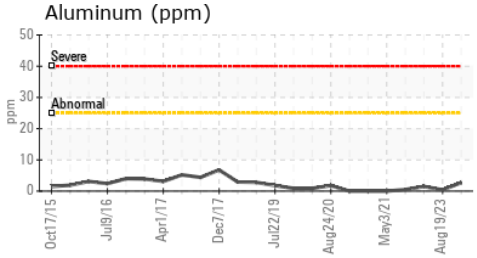
Iron (ppm)



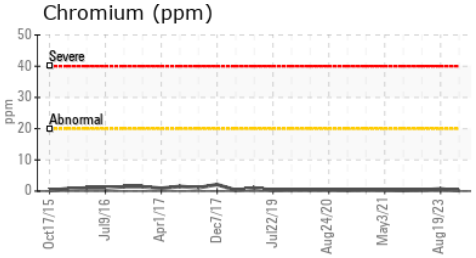

Lead (ppm)



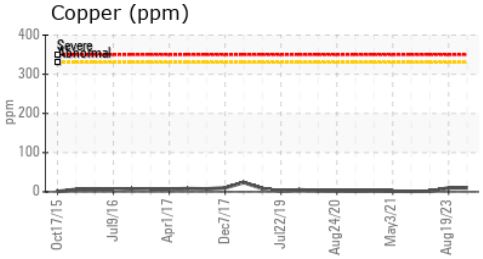

Aluminum (ppm)



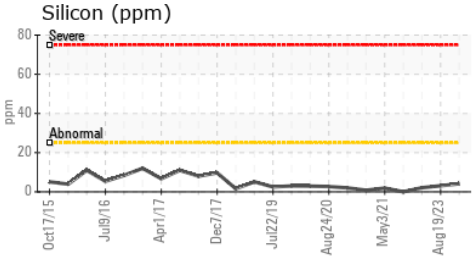

Chromium (ppm)



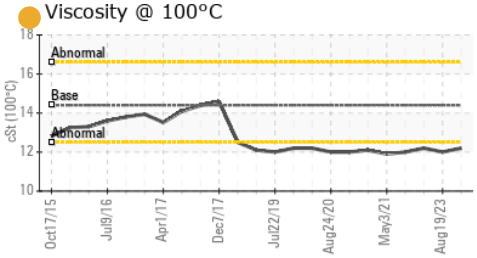

Copper (ppm)



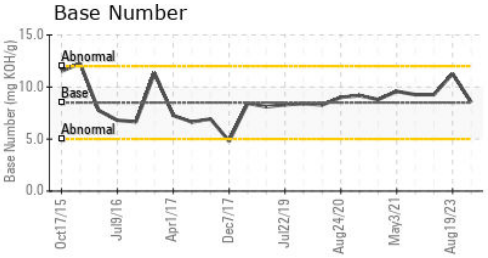

Silicon (ppm)




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0109569
**Lab Number** : 06121747
**Unique Number** : 10930580
**Test Package** : MOB 2

**Received** : 18 Mar 2024
**Tested** : 19 Mar 2024
**Diagnosed** : 21 Mar 2024 - Sean Felton

*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)*

**TRESCA BROS SAND & GRAVEL INC**
66 MAIN ST
MILLIS, MA
US 02054
Contact: FRAN ROSSI
frossi@trescaconcrete.com
T: (508)376-2957
F: (508)376-4333

Report Id: TREMILMA [WUSCAR] 06121747 (Generated: 03/21/2024 12:28:59) Rev: 1

Submitted By: JOHN HATZISTEFANOU