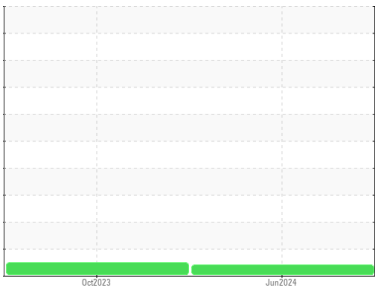
McCLUNG LOGAN EQUIPMENT COMPANY

# OIL ANALYSIS REPORT

Sample Rating Trend




VISCOSITY

Machine Id
## VOLVO A40G 342441
Component
**Diesel Engine**
Fluid
**CHEVRON DELO 400 MULTIGRADE 15W40 (--- QTS)**

## 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**
Fuel content negligible. 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 | | **ML0001748** | VCP429150 | --- |
| Sample Date | | Client Info | | **19 Jun 2024** | 13 Oct 2023 | --- |
| Machine Age | hrs | Client Info | | **5950** | 5519 | --- |
| Oil Age | hrs | Client Info | | **0** | 0 | --- |
| Oil Changed | | Client Info | | **Changed** | Changed | --- |
| Sample Status | | | | **ATTENTION** | 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 | >200 | **7** | 4 | --- |
| Chromium | ppm | ASTM D5185m | >20 | **0** | 0 | --- |
| Nickel | ppm | ASTM D5185m | >10 | **0** | 0 | --- |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Silver | ppm | ASTM D5185m | >2 | **0** | 0 | --- |
| Aluminum | ppm | ASTM D5185m | >30 | **2** | 2 | --- |
| Lead | ppm | ASTM D5185m | >40 | **1** | 0 | --- |
| Copper | ppm | ASTM D5185m | >20 | **1** | <1 | --- |
| Tin | ppm | ASTM D5185m | >20 | **0** | <1 | --- |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | 0 | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 151 | **342** | 5 | --- |
| Barium | ppm | ASTM D5185m | 0.4 | **0** | 0 | --- |
| Molybdenum | ppm | ASTM D5185m | 250 | **86** | 58 | --- |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | --- |
| Magnesium | ppm | ASTM D5185m | 0 | **498** | 952 | --- |
| Calcium | ppm | ASTM D5185m | 2046 | **1550** | 1161 | --- |
| Phosphorus | ppm | ASTM D5185m | 1043 | **1158** | 1118 | --- |
| Zinc | ppm | ASTM D5185m | 943 | **1402** | 1331 | --- |
| Sulfur | ppm | ASTM D5185m | 5012 | **4172** | 3433 | --- |

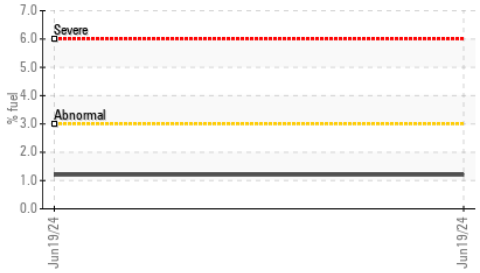
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >20 | **5** | 4 | --- |
| Sodium | ppm | ASTM D5185m | | **2** | 0 | --- |
| Potassium | ppm | ASTM D5185m | >20 | **2** | <1 | --- |
| Fuel | % | ASTM D3524 | >3.0 | **1.2** | <1.0 | --- |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.1** | 0.1 | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **7.3** | 6.4 | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **21.1** | 17.1 | --- |

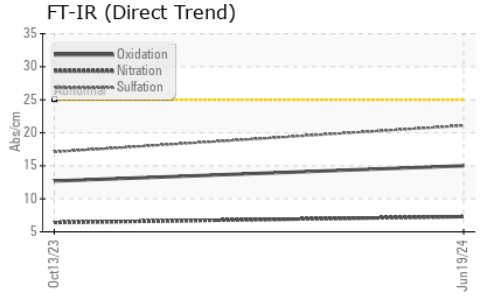
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **15.0** | 12.7 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 12.5 | **6.9** | 8.2 | --- |

# OIL ANALYSIS REPORT

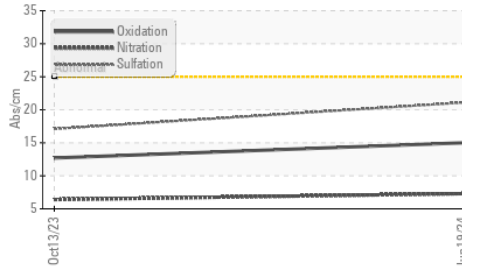
Fuel Dilution



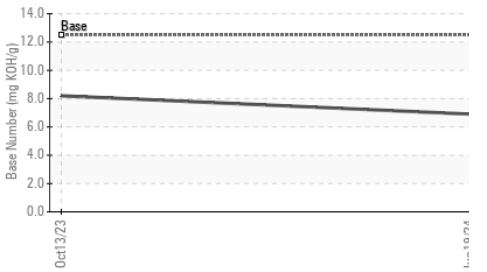

FT-IR (Direct Trend)




FT-IR (Direct Trend)




Base Number

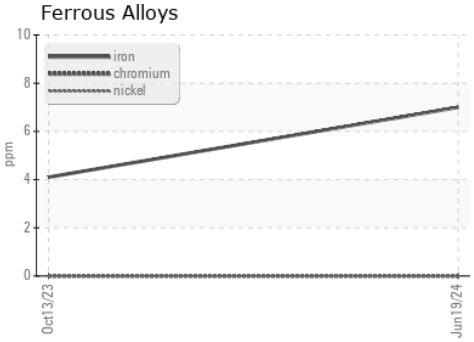



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | --- |
| Silt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

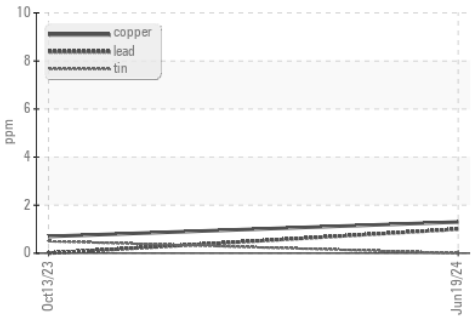
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | **12.2** | 13.2 | --- |

## GRAPHS

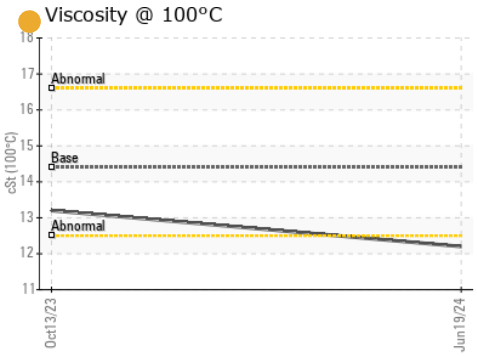
Ferrous Alloys



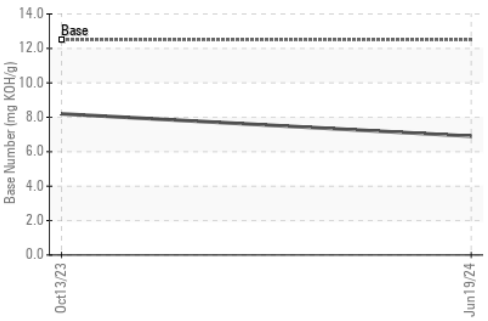

Non-ferrous Metals




Viscosity @ 100°C




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : ML0001748
**Lab Number** : 06215648
**Unique Number** : 11088512
**Test Package** : CONST ( Additional Tests: FuelDilution, PercentFuel, TBN )

**Received** : 20 Jun 2024
**Tested** : 24 Jun 2024
**Diagnosed** : 24 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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