MOB II WEAR CHECK

OIL ANALYSIS REPORT

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

Machine Id
## Coopersville CAT 5 CPVM05BE
Component
## Biogas Engine
Fluid
## CHEVRON HDAX 9500 GAS ENGINE OIL 40 (105 GAL)

## RECOMMENDATION

We recommend that you drain the oil and perform a filter service on this component if not already done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

## WEAR

The tin level is severe.

## CONTAMINATION

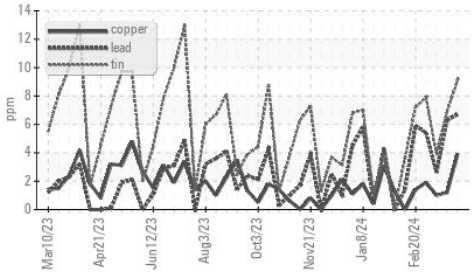
Elemental level of silicon (Si) above normal.

## FLUID CONDITION

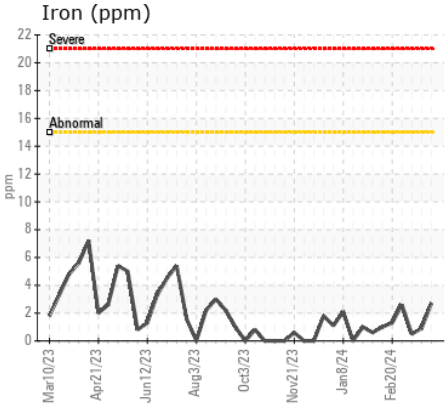
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | WC0871574 | WC0871563 | WC0871590 |
| Sample Date | | Client Info | | 18 Apr 2024 | 10 Apr 2024 | 29 Mar 2024 |
| Machine Age | hrs | Client Info | | 16595 | 16402 | 16119 |
| Oil Age | hrs | Client Info | | 838 | 645 | 362 |
| Filter Age | hrs | Client Info | | 838 | 645 | 362 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Changed |
| Filter Changed | | Client Info | | Not Changd | Not Changd | Changed |
| Sample Status | | | | SEVERE | SEVERE | ABNORMAL |
| Iron | ppm | ASTM D5185m | >15 | 3 | <1 | <1 |
| Chromium | ppm | ASTM D5185m | >4 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >6 | 2 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >9 | 7 | 6 | 3 |
| Copper | ppm | ASTM D5185m | >6 | 4 | 1 | 1 |
| Tin | ppm | ASTM D5185m | >4 | ▲ 9 | ▲ 7 | ▲ 4 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silicon | ppm | ASTM D5185m | >181 | ▲ 242 | ▲ 183 | 127 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 3 | 0 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >.11 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | | 0.1 | 0.1 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | | 7.3 | 7.3 | 6.7 |
| Sulfation | Abs/.1mm | *ASTM D7415 | | 20.9 | 20.0 | 17.9 |
| 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 | >.11 | NEG | NEG | NEG |
| Sodium | ppm | ASTM D5185m | >21 | 2 | 1 | 1 |
| Boron | ppm | ASTM D5185m | | 2 | 0 | 2 |
| Barium | ppm | ASTM D5185m | | 1 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 4 | 4 | 4 |
| Manganese | ppm | ASTM D5185m | | 1 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | | 10 | 9 | 6 |
| Calcium | ppm | ASTM D5185m | | 2018 | 2015 | 1770 |
| Phosphorus | ppm | ASTM D5185m | | 299 | 299 | 248 |
| Zinc | ppm | ASTM D5185m | | 367 | 352 | 318 |
| Sulfur | ppm | ASTM D5185m | | 2555 | 2594 | 2122 |
| Oxidation | Abs/.1mm | *ASTM D7414 | | 16.8 | 15.7 | 12.7 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.0 | 1.71 | 1.69 | 1.13 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 5.4 | 3.10 | 3.38 | 3.98 |
| Visc @ 100°C | cSt | ASTM D445 | 13.4 | 14.0 | 13.9 | 13.7 |

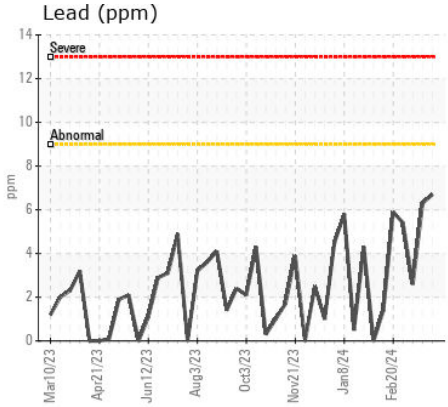
Non-ferrous Metals



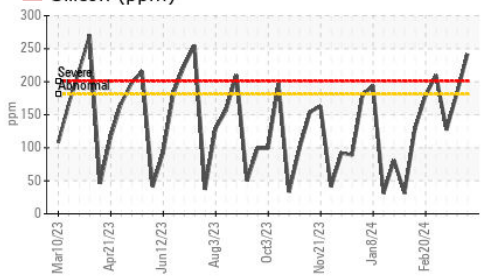

Iron (ppm)



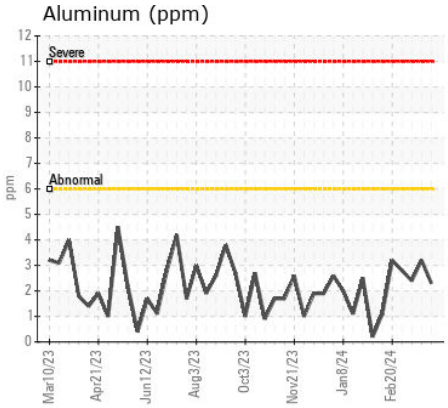

Lead (ppm)



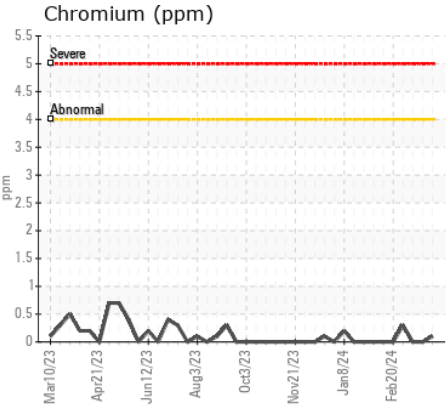

Silicon (ppm)



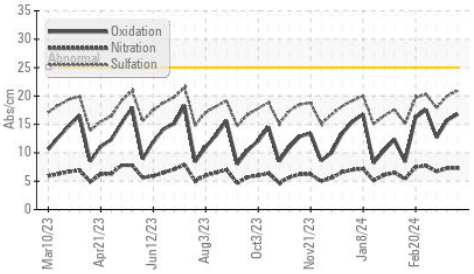

Aluminum (ppm)



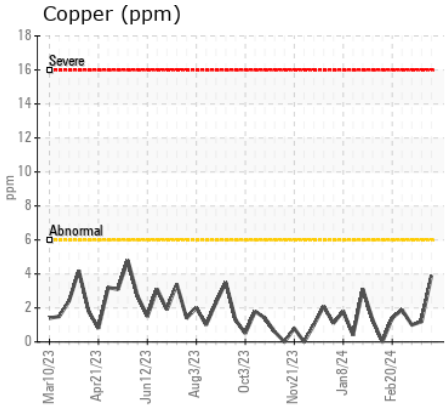

Chromium (ppm)



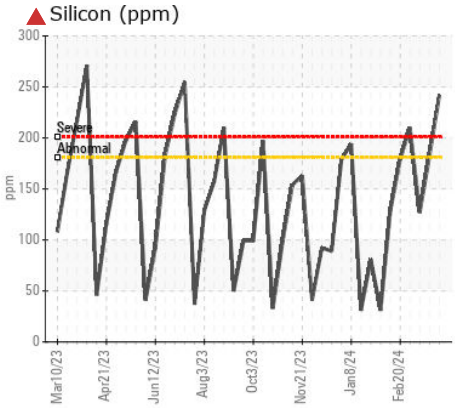

FT-IR (Direct Trend)



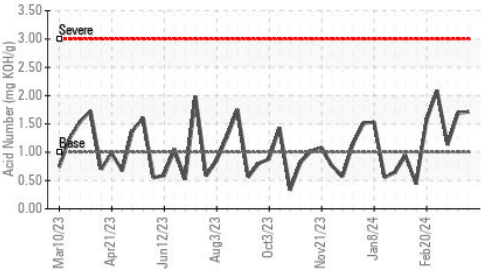

Copper (ppm)



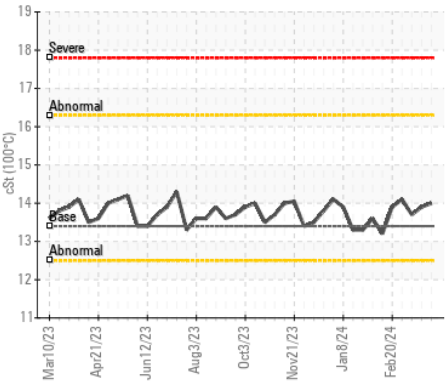

Silicon (ppm)



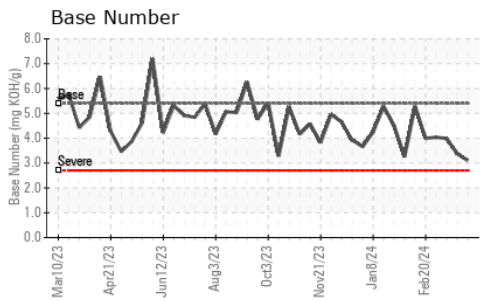

Acid Number



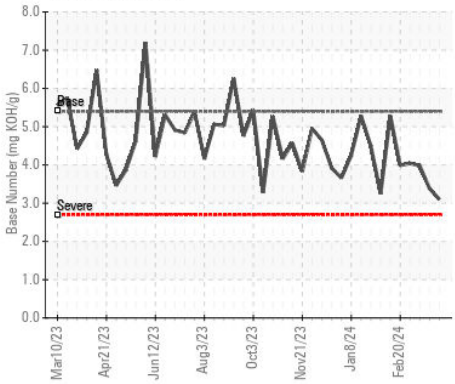

Viscosity @ 100°C




Base Number




Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0871574
**Lab Number** : 06156195
**Unique Number** : 10991618
**Test Package** : MOB 2

**Received** : 22 Apr 2024
**Tested** : 23 Apr 2024
**Diagnosed** : 24 Apr 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)*

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