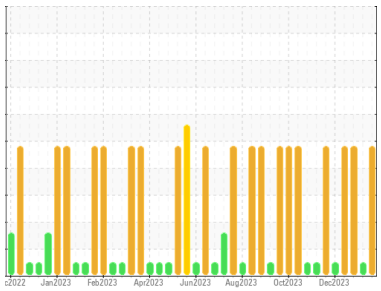
# OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
## SAVM03BE (S/N GZJ00168)
Component
**Biogas Engine**
Fluid
**CHEVRON HDAX 9500 GAS ENGINE OIL 40 (141 GAL)**

## DIAGNOSIS

**Recommendation**
We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

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

**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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **WC0788900** | WC0788897 | WC0788895 |
| Sample Date | | Client Info | | **20 Feb 2024** | 07 Feb 2024 | 23 Jan 2024 |
| Machine Age | hrs | Client Info | | **174649** | 174378 | 174033 |
| Oil Age | hrs | Client Info | | **595** | 324 | 982 |
| Oil Changed | | Client Info | | **Not Changd** | Not Changd | Changed |
| Sample Status | | | | **SEVERE** | NORMAL | SEVERE |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Fuel | | WC Method | >4.0 | **<1.0** | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | **NEG** | NEG | NEG |
| Glycol | | WC Method | | **NEG** | NEG | NEG |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >15 | **4** | 2 | 5 |
| Chromium | ppm | ASTM D5185m | >4 | **<1** | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | **<1** | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Silver | ppm | ASTM D5185m | >5 | **<1** | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >6 | **<1** | <1 | 2 |
| Lead | ppm | ASTM D5185m | >9 | **1** | 0 | 3 |
| Copper | ppm | ASTM D5185m | >6 | **2** | 0 | 2 |
| Tin | ppm | ASTM D5185m | >4 | **3** | <1 | 4 |
| Vanadium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **3** | 0 | 1 |
| Barium | ppm | ASTM D5185m | | **5** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **7** | 5 | 4 |
| Manganese | ppm | ASTM D5185m | | **<1** | 0 | <1 |
| Magnesium | ppm | ASTM D5185m | | **11** | 8 | 16 |
| Calcium | ppm | ASTM D5185m | | **1474** | 1871 | 1700 |
| Phosphorus | ppm | ASTM D5185m | | **210** | 270 | 283 |
| Zinc | ppm | ASTM D5185m | | **300** | 340 | 356 |
| Sulfur | ppm | ASTM D5185m | | **1624** | 1881 | 2115 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >181 | **209** | 145 | 296 |
| Sodium | ppm | ASTM D5185m | | **0** | <1 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 0 | 3 |

| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | | **0** | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **6.2** | 5.8 | 5.8 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **17.9** | 16.6 | 19.7 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **11.5** | 9.9 | 12.9 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | 1.1 | **0.80** | 0.22 | 0.96 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 5.4 | **4.47** | 4.55 | 4.00 |

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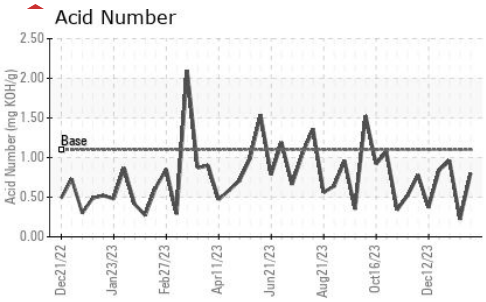
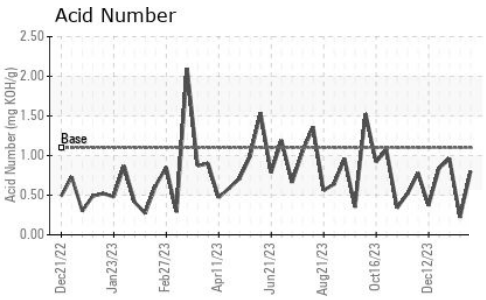
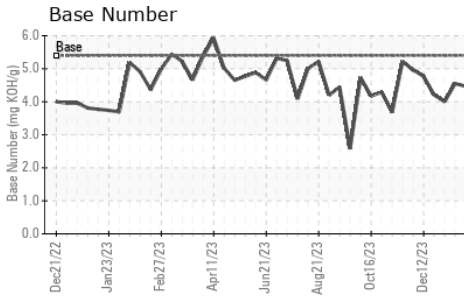
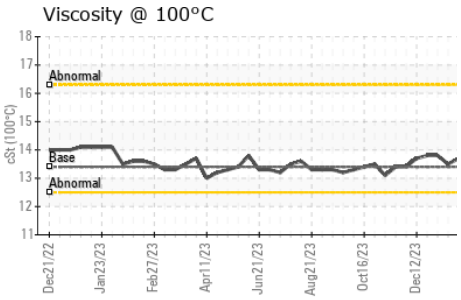


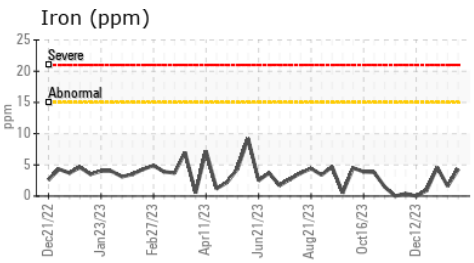



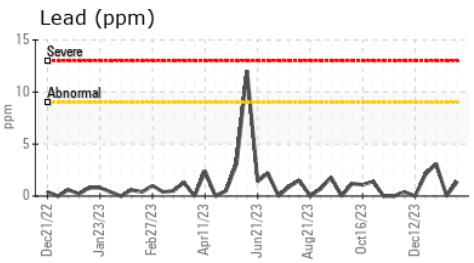



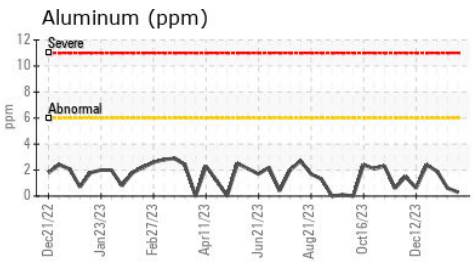

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| 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 | >0.1 | **NEG** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

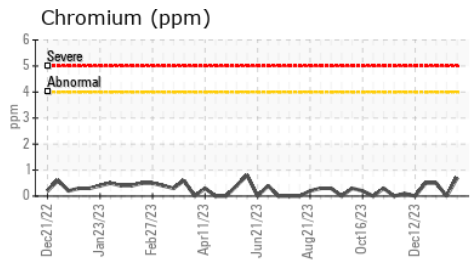
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | 13.4 | **13.7** | 13.5 | 13.8 |

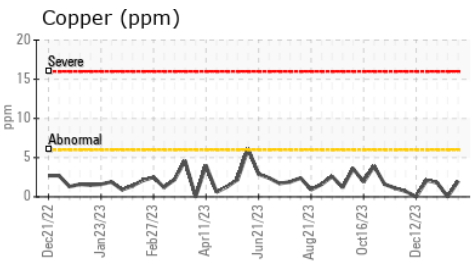
## GRAPHS

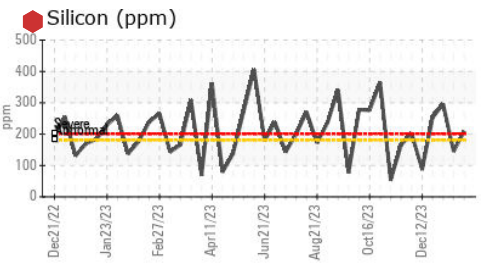


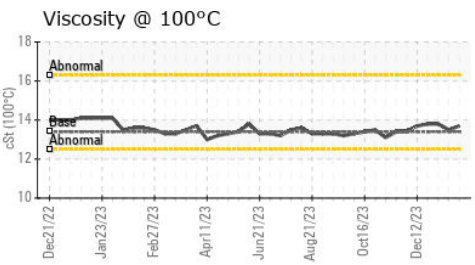



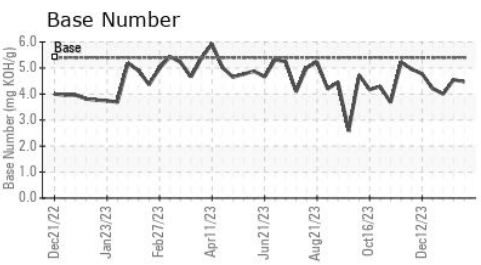




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : WC0788900
**Lab Number** : 06097897
**Unique Number** : 10896127
**Test Package** : MOB 2

**Received** : 22 Feb 2024
**Tested** : 23 Feb 2024
**Diagnosed** : 25 Feb 2024 - Don Baldridge

**EDL NA Recips-Sand Valley**
SAND VALLEY POWER STATION, 3345 COUNTY ROAD 209
COLLINSVILLE, AL
US 35961
Contact: BRANDON PEYTON
brandon.peyton@energydi.com
T:
F:

*To discuss this sample report, contact Customer Service at 1-800-237-1369.*
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*Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)*