



OIL ANALYSIS REPORT

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



Machine Id
JENBACHER GM02 (S/N 1251397)
Component
Biogas Engine
Fluid
MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0880338 | WC0880301 | WC0880305 |
| Sample Date | | Client Info | | 19 Feb 2024 | 12 Feb 2024 | 05 Feb 2024 |
| Machine Age | hrs | Client Info | | 23235 | 23083 | 22917 |
| Oil Age | hrs | Client Info | | 2628 | 2476 | 2310 |
| Filter Age | hrs | Client Info | | 2628 | 2476 | 2310 |
| Oil Changed | | Client Info | | N/A | N/A | Not Changd |
| Filter Changed | | Client Info | | N/A | N/A | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >20 | 3 | <1 | 1 |
| Chromium | ppm | ASTM D5185m | >5 | <1 | 0 | 0 |
| 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 | >15 | <1 | 3 | 2 |
| Lead | ppm | ASTM D5185m | >20 | 1 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >15 | <1 | 0 | 0 |
| Tin | ppm | ASTM D5185m | >5 | <1 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

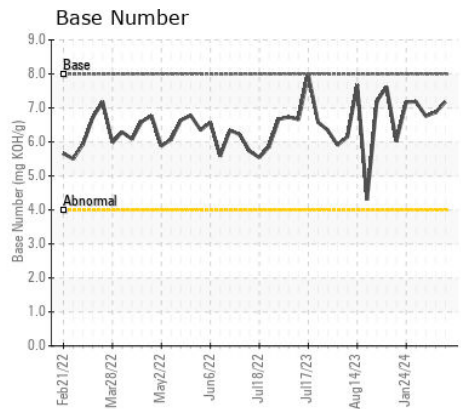
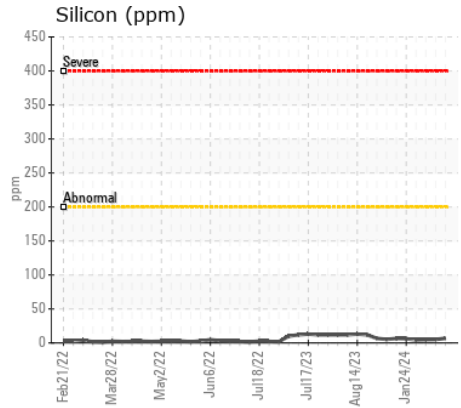
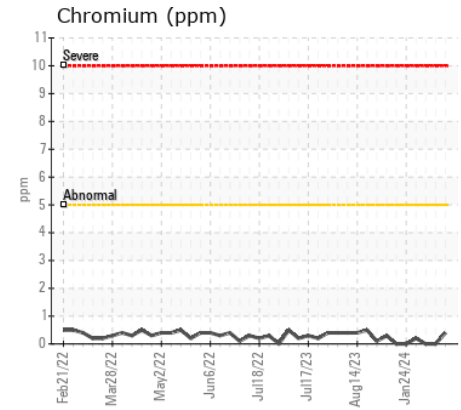
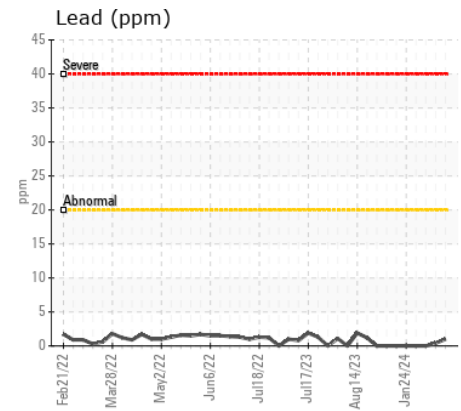
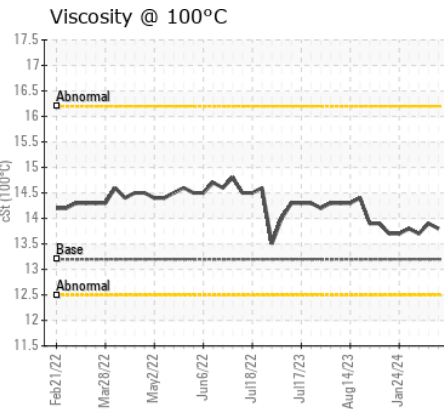
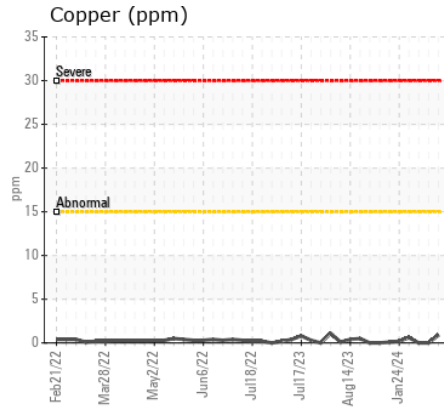
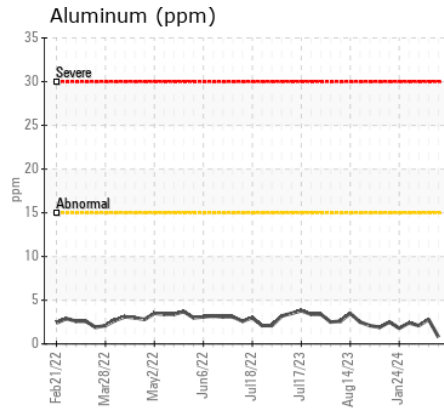
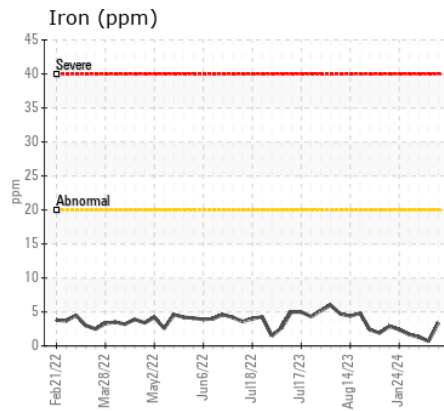
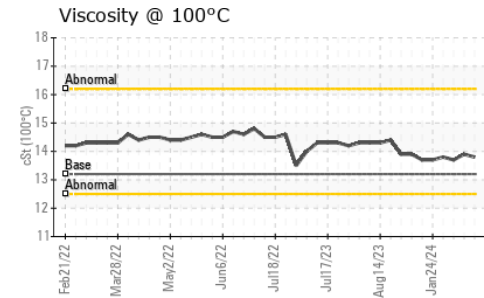
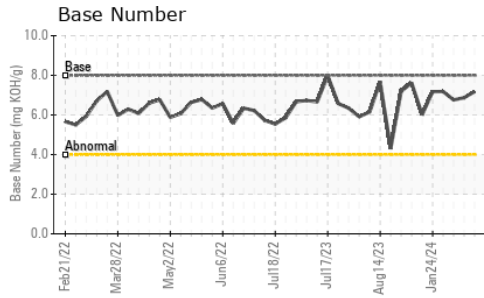
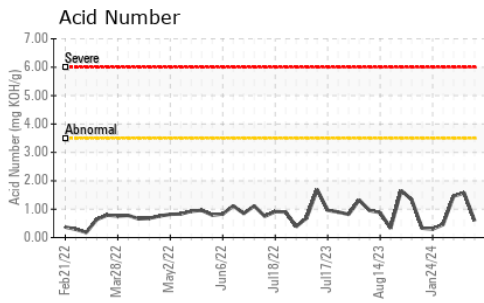
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >200 | 7 | 5 | 5 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | 1 | 0 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >2 | 0 | 0 | 0 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 7.7 | 7.7 | 7.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 16.9 | 16.8 | 16.6 |
| 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 | >.2 | NEG | NEG | NEG |

FLUID CONDITION

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

| | | | | | | |
|------------------|----------|-------------|------|--------------|-------|------|
| Sodium | ppm | ASTM D5185m | >20 | 0 | 2 | <1 |
| Boron | ppm | ASTM D5185m | | 1 | <1 | <1 |
| Barium | ppm | ASTM D5185m | | 5 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 2 | <1 | 2 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 9 | 13 | 10 |
| Calcium | ppm | ASTM D5185m | | 2150 | 2270 | 2194 |
| Phosphorus | ppm | ASTM D5185m | | 416 | 460 | 451 |
| Zinc | ppm | ASTM D5185m | | 482 | 518 | 521 |
| Sulfur | ppm | ASTM D5185m | | 2543 | 2380 | 2384 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 12.7 | 12.6 | 12.3 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 0.59 | 1.571 | 1.46 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.0 | 7.18 | 6.87 | 6.76 |
| Visc @ 100°C | cSt | ASTM D445 | 13.2 | 13.8 | 13.9 | 13.7 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0880338

Lab Number : 06097901

Unique Number : 10896131

Test Package : MOB 2

Received : 22 Feb 2024

Tested : 23 Feb 2024

Diagnosed : 25 Feb 2024 - Don Baldrige

ASB MAS GA LFG PLANT COGEN

3791 BROWNS MILL RD SE

ATLANTA, GA

US 30354

Contact: DEREK PAGE

derek.page@cubedistrictenergy.com

T:

F:

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)