



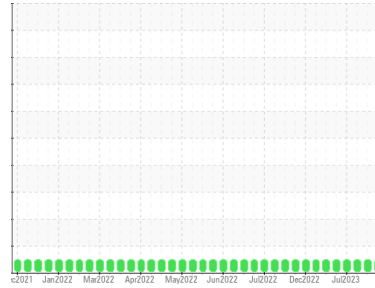
# OIL ANALYSIS REPORT

Sample Rating Trend

**NORMAL**



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



## DIAGNOSIS

### Recommendation

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 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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>WC0721958</b>	WC0721961	WC0721972
Sample Date	Client Info			<b>14 Aug 2023</b>	07 Aug 2023	02 Aug 2023
Machine Age	hrs	Client Info		<b>19899</b>	19731	19611
Oil Age	hrs	Client Info		<b>6127</b>	5959	5839
Oil Changed	Client Info			<b>N/A</b>	N/A	N/A
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method		>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Glycol	WC Method			<b>NEG</b>	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	<b>4</b>	5	6
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>4</b>	3	2
Lead	ppm	ASTM D5185m	>20	<b>2</b>	0	1
Copper	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	1
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>4</b>	4	10
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>2</b>	<1	2
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>19</b>	14	13
Calcium	ppm	ASTM D5185m		<b>2579</b>	2589	2537
Phosphorus	ppm	ASTM D5185m		<b>515</b>	518	504
Zinc	ppm	ASTM D5185m		<b>598</b>	621	579
Sulfur	ppm	ASTM D5185m		<b>3053</b>	3111	2878

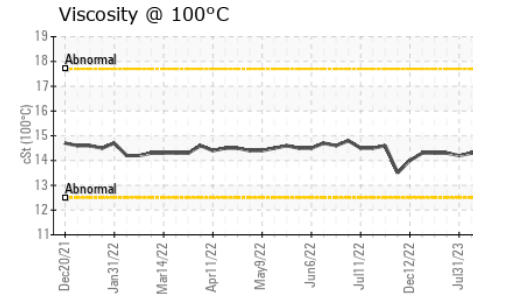
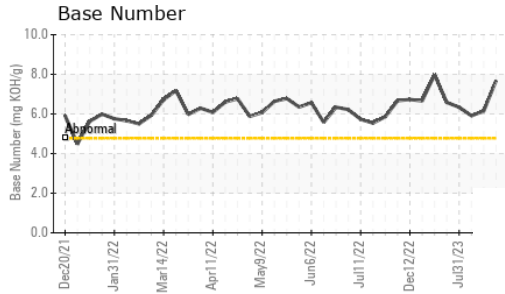
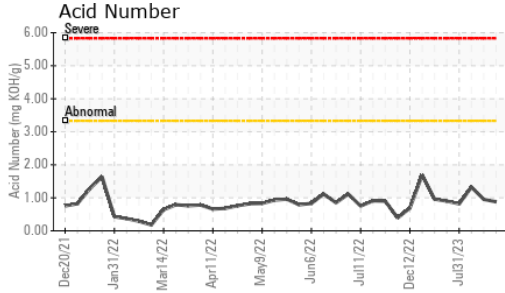
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>200	<b>13</b>	12	12
Sodium	ppm	ASTM D5185m	>20	<b>3</b>	2	<1
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	<1	0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>2	<b>0</b>	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.6</b>	9.5	9.4
Sulfation	Abs.1mm	*ASTM D7415	>30	<b>19.2</b>	19.2	18.5

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs.1mm	*ASTM D7414	>25	<b>15.8</b>	15.8	14.7
Acid Number (AN)	mg KOH/g	ASTM D8045		<b>0.88</b>	0.952	1.323
Base Number (BN)	mg KOH/g	ASTM D2896		<b>7.68</b>	6.15	5.91



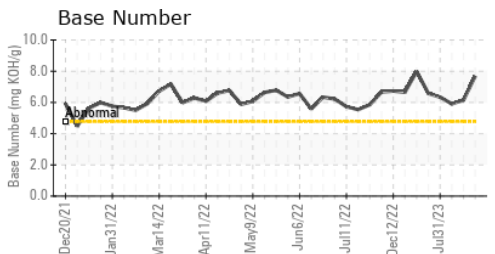
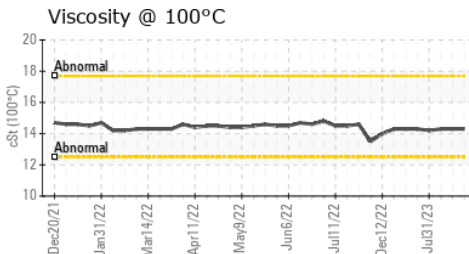
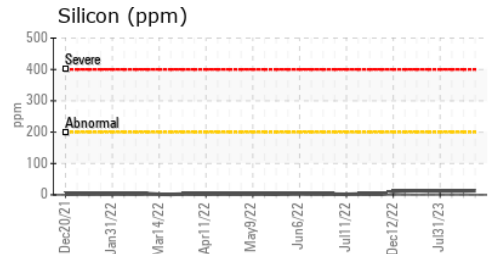
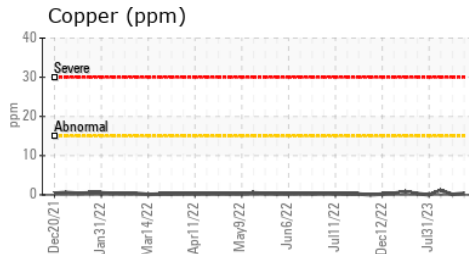
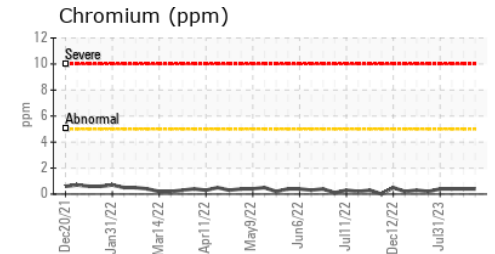
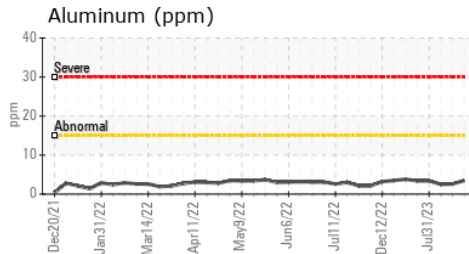
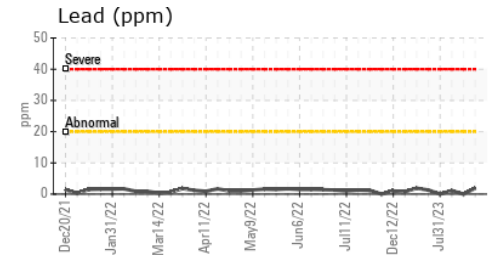
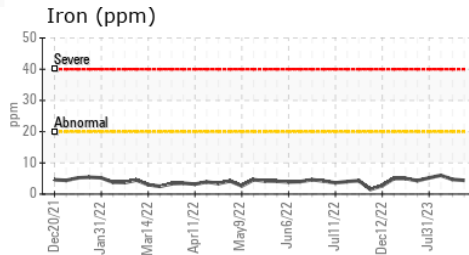
# OIL ANALYSIS REPORT



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	>.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.3	14.3	14.3

## GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
 Sample No. : WC0721958  
 Lab Number : 05926827  
 Unique Number : 10606774  
 Test Package : MOB 2

Received : 16 Aug 2023  
 Diagnosed : 18 Aug 2023  
 Diagnostician : Don Baldrige

ASB  
 3791 BROWNS MILL RD SE  
 ATLANTA, GA  
 US 30354

Contact: DEREK PAGE  
 derek.page@cubedistrictenergy.com

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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F: