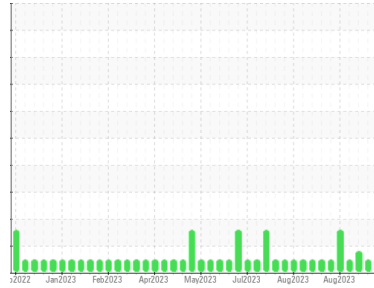




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Machine Id  
**CATERPILLAR GM01**  
 Component  
**Biogas Engine**  
 Fluid  
**MAHLER 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>WC0836378</b>	WC0836377	WC0836345
Sample Date	Client Info		<b>25 Sep 2023</b>	18 Sep 2023	06 Sep 2023
Machine Age	hrs	Client Info	<b>23236</b>	23072	22894
Oil Age	hrs	Client Info	<b>92</b>	286	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	ABNORMAL

## 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 >45	<b>3</b>	8	▲ 96
Chromium	ppm	ASTM D5185m >2	<b>0</b>	<1	2
Nickel	ppm	ASTM D5185m >2	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	<b>0</b>	0	0
Silver	ppm	ASTM D5185m >5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >10	<b>4</b>	2	4
Lead	ppm	ASTM D5185m >5	<b>&lt;1</b>	<1	0
Copper	ppm	ASTM D5185m >14	<b>&lt;1</b>	1	2
Tin	ppm	ASTM D5185m >13	<b>1</b>	2	1
Vanadium	ppm	ASTM D5185m	<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>6</b>	0	0
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>2</b>	<1	0
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	2
Magnesium	ppm	ASTM D5185m	<b>8</b>	1	6
Calcium	ppm	ASTM D5185m	<b>1377</b>	1493	1603
Phosphorus	ppm	ASTM D5185m	<b>403</b>	393	423
Zinc	ppm	ASTM D5185m	<b>450</b>	433	495
Sulfur	ppm	ASTM D5185m	<b>2059</b>	2418	2619

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >200	<b>70</b>	160	129
Sodium	ppm	ASTM D5185m	<b>5</b>	4	0
Potassium	ppm	ASTM D5185m >20	<b>0</b>	2	0

## INFRA-RED

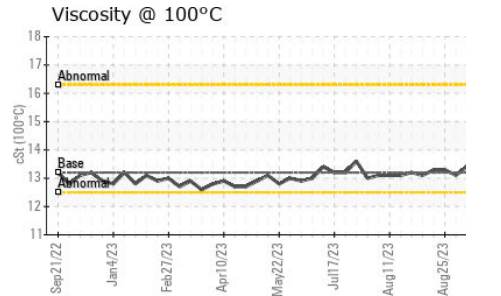
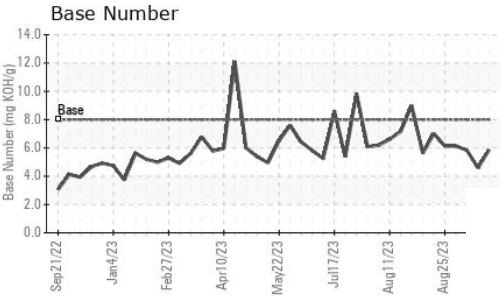
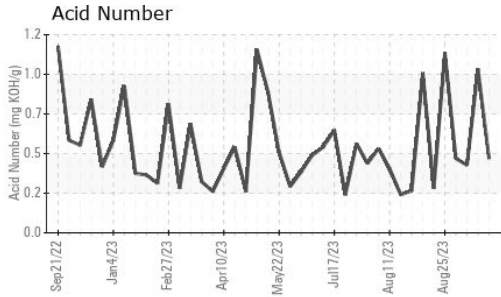
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	<b>0</b>	0	0.1
Nitration	Abs/cm	*ASTM D7624 >20	<b>4.9</b>	5.2	5.6
Sulfation	Abs/.1mm	*ASTM D7415 >30	<b>15.3</b>	15.9	16.0

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	<b>9.4</b>	9.9	10.7
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.45</b>	0.99	0.41
Base Number (BN)	mg KOH/g	ASTM D2896 8.0	<b>5.86</b>	4.58	5.83



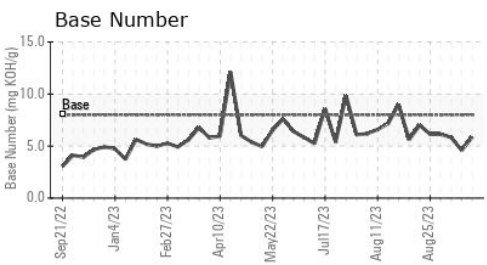
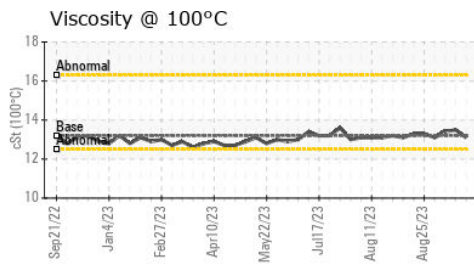
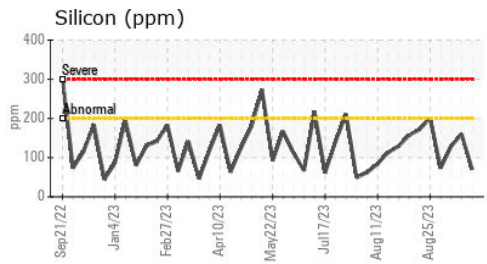
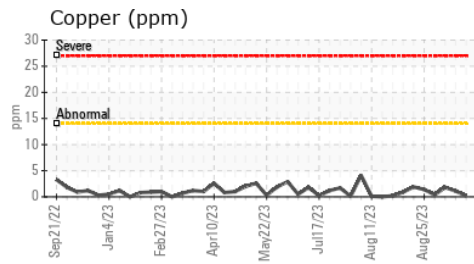
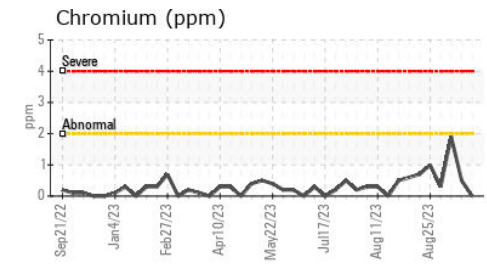
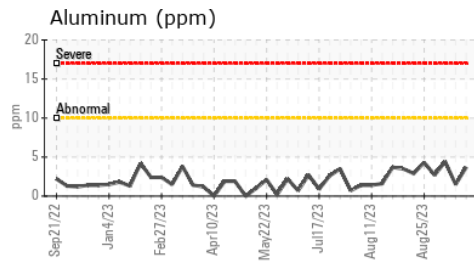
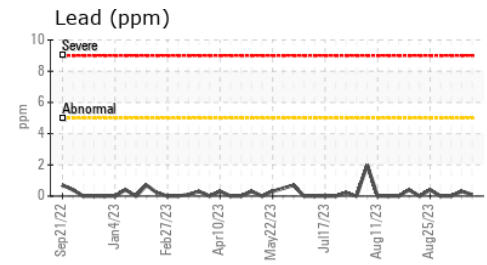
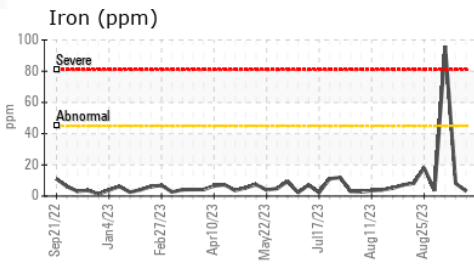
# OIL ANALYSIS REPORT



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	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.2	<b>13.1</b>	13.5	13.4

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0836378 **Received** : 27 Sep 2023  
**Lab Number** : **05962375** **Diagnosed** : 28 Sep 2023  
**Unique Number** : 10668926 **Diagnostician** : Sean Felton  
**Test Package** : MOB 2

**OAK GROVE KS**  
 1150 E 700TH AVE  
 ARCADIA, KS  
 US 66711  
 Contact: KALEB WEAVER  
 kaleb.weaver@cubedistrictenergy.com  
 T:  
 F:

Certificate L2367  
 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)