

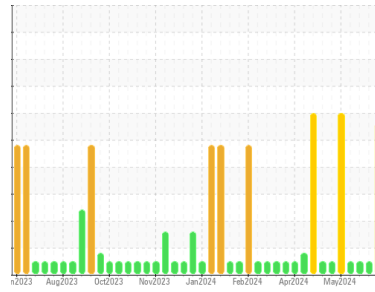


# OIL ANALYSIS REPORT



Machine Id  
**BRCM02BE (S/N GZJ00357)**  
 Component  
**Biogas Engine**  
 Fluid  
**CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)**

Sample Rating Trend



**DIRT**



## 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

The tin level is abnormal.

### ▲ 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		<b>WC0938417</b>	WC0938380	WC0938383
Sample Date	Client Info		<b>21 Jun 2024</b>	14 Jun 2024	07 Jun 2024
Machine Age	hrs	Client Info	<b>76153</b>	75985	75832
Oil Age	hrs	Client Info	<b>473</b>	305	152
Oil Changed	Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status			<b>SEVERE</b>	NORMAL	NORMAL

## CONTAMINATION

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

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184		<b>16</b>	16	16
Iron	ppm	ASTM D5185m >14	<b>2</b>	<1	2
Chromium	ppm	ASTM D5185m >3	<b>0</b>	0	<1
Nickel	ppm	ASTM D5185m	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m >5	<b>3</b>	2	2
Lead	ppm	ASTM D5185m >8	<b>0</b>	0	<1
Copper	ppm	ASTM D5185m >5	<b>1</b>	1	<1
Tin	ppm	ASTM D5185m >3	<b>▲ 3</b>	<1	2
Vanadium	ppm	ASTM D5185m	<b>0</b>	<1	<1
Cadmium	ppm	ASTM D5185m	<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>10</b>	13	9
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>11</b>	11	11
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	<b>25</b>	17	11
Calcium	ppm	ASTM D5185m	<b>1830</b>	1844	1788
Phosphorus	ppm	ASTM D5185m	<b>293</b>	266	264
Zinc	ppm	ASTM D5185m	<b>358</b>	329	321
Sulfur	ppm	ASTM D5185m	<b>2506</b>	2271	2267

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	<b>▲ 227</b>	156	93
Sodium	ppm	ASTM D5185m >20	<b>6</b>	3	2
Potassium	ppm	ASTM D5185m >20	<b>5</b>	4	4

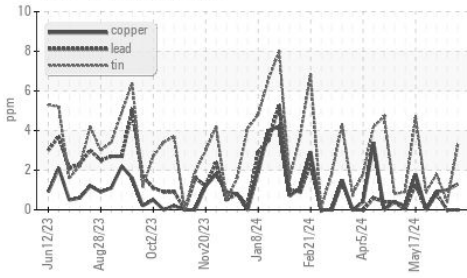
## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	<b>0.1</b>	0	0
Nitration	Abs/cm	*ASTM D7624	<b>6.3</b>	5.6	5.6
Sulfation	Abs/.1mm	*ASTM D7415	<b>19.4</b>	16.8	16.4

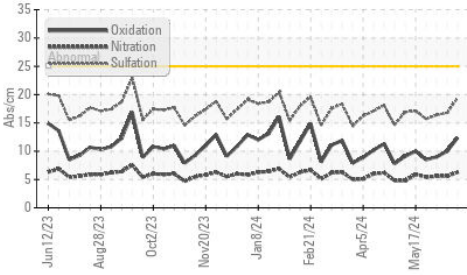


# OIL ANALYSIS REPORT

## Non-ferrous Metals



## FT-IR (Direct Trend)



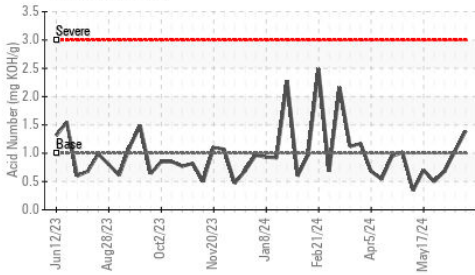
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414		<b>12.4</b>	10.0	9.0
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	<b>1.39</b>	1.04	0.68
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	<b>3.97</b>	4.10	4.96

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual		<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

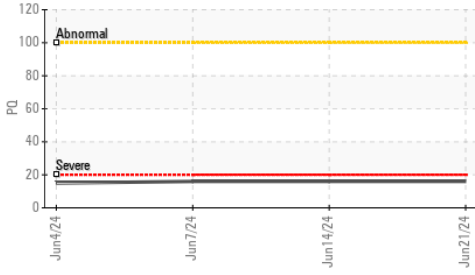
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	<b>13.3</b>	13.2	13.0

## GRAPHS

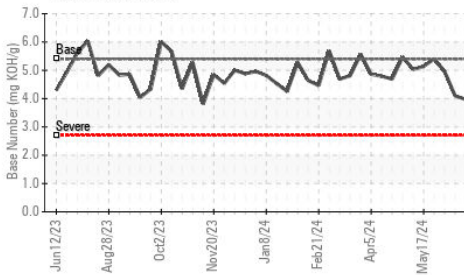
### Acid Number



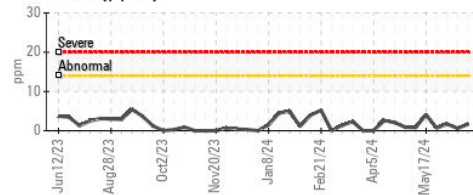
### PQ



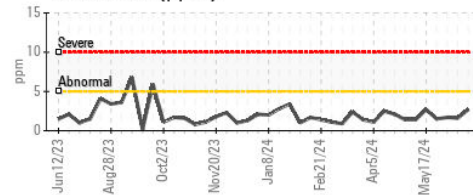
### Base Number



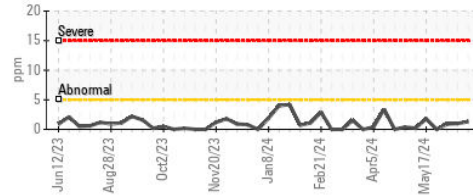
### Iron (ppm)



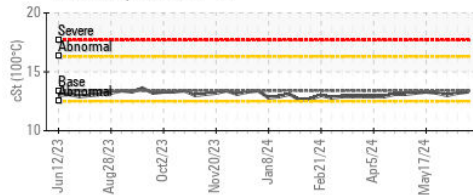
### Aluminum (ppm)



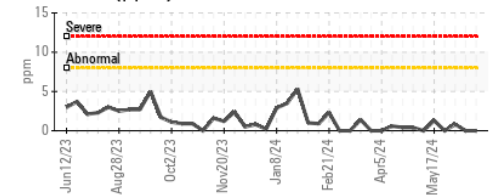
### Copper (ppm)



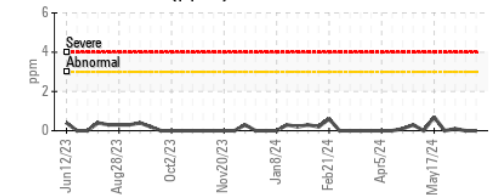
### Viscosity @ 100°C



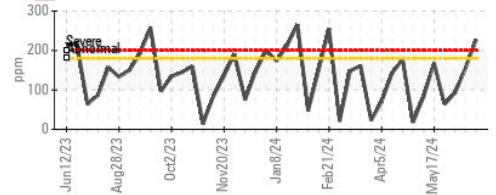
### Lead (ppm)



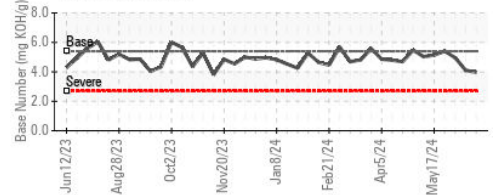
### Chromium (ppm)



### Silicon (ppm)



### Base Number



Certificate L2367

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

Sample No. : WC0938417

Lab Number : 06219899

Unique Number : 11098096

Test Package : MOB 2 ( Additional Tests: PQ )

Received : 25 Jun 2024

Tested : 26 Jun 2024

Diagnosed : 26 Jun 2024 - Sean Felton

EDL NA Recips-Brown County

BROWN COUNTY POWER STATION, 9427 BEYERS RD

GEORGETOWN, OH

US 45121

Contact: MITCHELL BUTLER

Mitchell.Butler@edlenergy.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)