

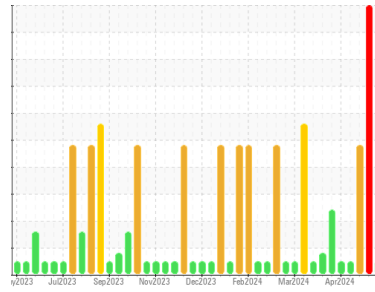


# OIL ANALYSIS REPORT



Machine Id  
**BRCM03BE (S/N 6ZJ00395)**  
 Component  
**Biogas Engine**  
 Fluid  
**CHEVRON HDAX 9500 GAS ENGINE OIL 40 (150 GAL)**

Sample Rating Trend



**NORMAL**



## 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>WC0760841</b>	WC0760836	WC0760842
Sample Date	Client Info		<b>04 Jun 2024</b>	17 May 2024	10 May 2024
Machine Age	hrs	Client Info	<b>93786</b>	93505	93334
Oil Age	hrs	Client Info	<b>106</b>	510	339
Oil Changed	Client Info		<b>Not Chngd</b>	Not Chngd	Not Chngd
Sample Status			<b>NORMAL</b>	SEVERE	SEVERE

## 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>17</b>	---	---
Iron	ppm	ASTM D5185m >14	<b>2</b>	6	4
Chromium	ppm	ASTM D5185m >3	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185m	<b>0</b>	<1	0
Titanium	ppm	ASTM D5185m	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185m	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185m >5	<b>2</b>	4	2
Lead	ppm	ASTM D5185m >8	<b>&lt;1</b>	4	0
Copper	ppm	ASTM D5185m >5	<b>&lt;1</b>	6	4
Tin	ppm	ASTM D5185m >3	<b>1</b>	6	2
Vanadium	ppm	ASTM D5185m	<b>&lt;1</b>	<1	0
Cadmium	ppm	ASTM D5185m	<b>0</b>	<1	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<b>8</b>	8	0
Barium	ppm	ASTM D5185m	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	<b>11</b>	8	6
Manganese	ppm	ASTM D5185m	<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	<b>15</b>	26	23
Calcium	ppm	ASTM D5185m	<b>1753</b>	1862	1937
Phosphorus	ppm	ASTM D5185m	<b>272</b>	304	300
Zinc	ppm	ASTM D5185m	<b>331</b>	385	362
Sulfur	ppm	ASTM D5185m	<b>2210</b>	2725	2435

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	<b>81</b>	324	208
Sodium	ppm	ASTM D5185m >20	<b>4</b>	0	2
Potassium	ppm	ASTM D5185m >20	<b>3</b>	4	0

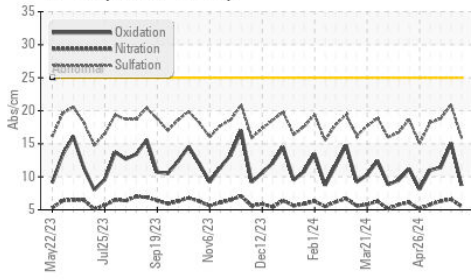
## INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	<b>0</b>	0.1	0
Nitration	Abs/cm	*ASTM D7624	<b>5.5</b>	6.6	6.3
Sulfation	Abs./1mm	*ASTM D7415	<b>15.9</b>	20.9	18.8

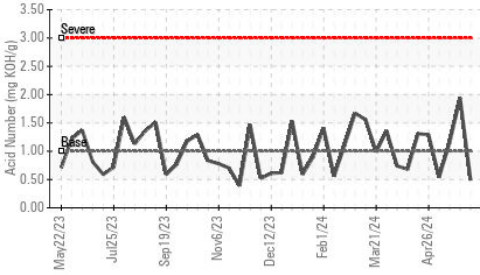


# OIL ANALYSIS REPORT

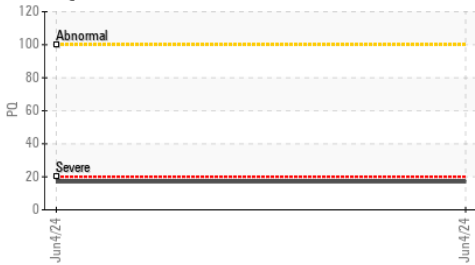
FT-IR (Direct Trend)



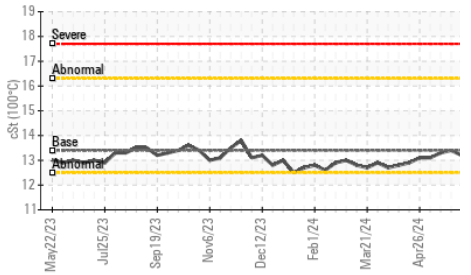
Acid Number



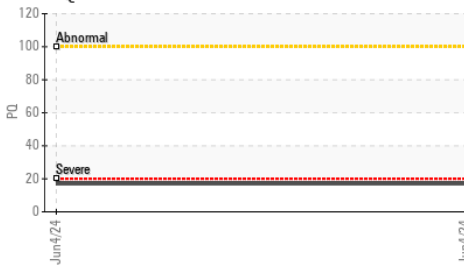
PQ



Viscosity @ 100°C



PQ



**FLUID DEGRADATION**

	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414	<b>8.7</b>	15.1	11.4
Acid Number (AN)	mg KOH/g	ASTM D8045	<b>0.49</b>	1.94	1.15
Base Number (BN)	mg KOH/g	ASTM D2896	<b>4.56</b>	3.68	4.07

**VISUAL**

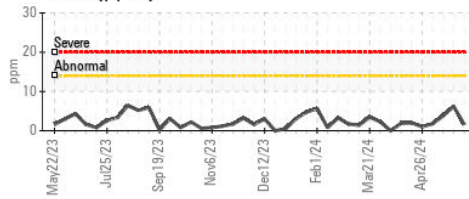
	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual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

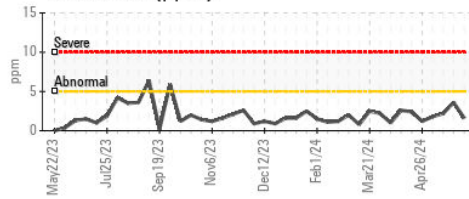
	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	<b>13.2</b>	13.4	13.3

**GRAPHS**

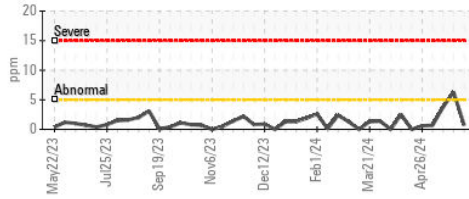
Iron (ppm)



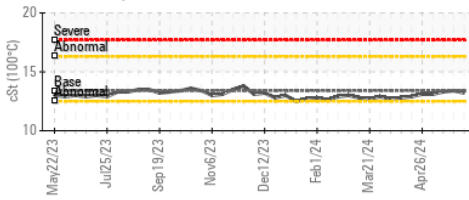
Aluminum (ppm)



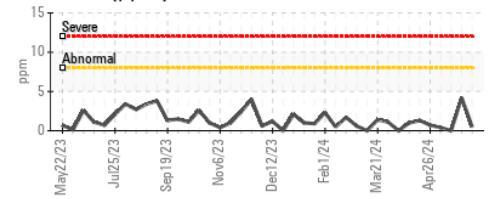
Copper (ppm)



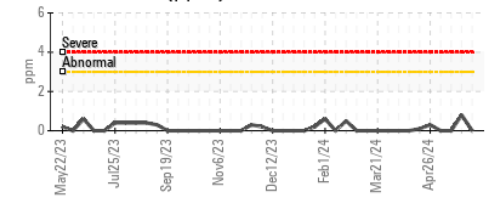
Viscosity @ 100°C



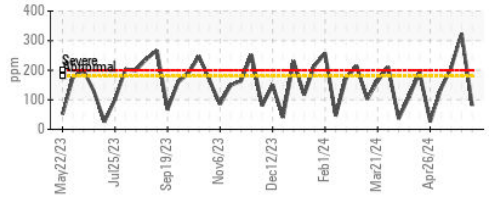
Lead (ppm)



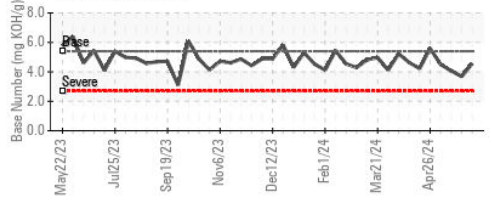
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

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

Sample No. : WC0760841

Lab Number : 06202124

Unique Number : 11069585

Test Package : MOB 2 ( Additional Tests: PQ )

Received : 06 Jun 2024

Tested : 18 Jun 2024

Diagnosed : 18 Jun 2024 - Jonathan Hester

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)