

## **OIL ANALYSIS REPORT**

### Sample Rating Trend

# 2022 Justi023 Mad 0213 April023 Justi022 Jud 0223 Septi023 Novi023

NORMAL



# Grand Blanc CAT 2 GBLM02BE

Component **Biogas Engine** 

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: 900hr oil sample)

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil.

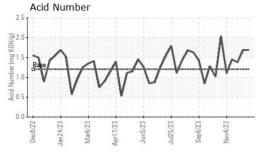
### **Fluid Condition**

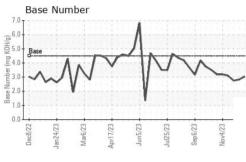
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

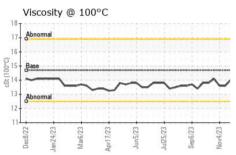
SAMPLE INFORM	AATION.	method	limit/base	current	history1	history2
	MATION		IIIIII/Dase		•	•
Sample Number		Client Info		WC0870078	WC0870072	WC0870031
Sample Date		Client Info		04 Dec 2023	24 Nov 2023	14 Nov 2023
Machine Age	hrs	Client Info		9265	9126	8886
Oil Age	hrs	Client Info		950	827	587
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	4	<1	<1
Chromium	ppm	ASTM D5185m		<1	<1	0
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	3	2	2
Lead	ppm	ASTM D5185m	>9	8	4	2
Copper	ppm	ASTM D5185m	>14	5	4	4
Tin	ppm	ASTM D5185m	>4	3	2	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		and the second	::\./		11.	history2
ADDITIVES		method	limit/base	current	history1	HISTOLA
Boron	ppm	ASTM D5185m	ilmit/base	o current	nistory1 0	0
	ppm		iimi/base			
Boron		ASTM D5185m	iimii/base	0	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	IIMII/base	0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	iimii/base	0 0 2	0 0 0	0 0 1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iimii/base	0 0 2 <1	0 0 0 <1	0 0 1 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	imivoase	0 0 2 <1 0	0 0 0 <1 13	0 0 1 <1 12
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	imivoase	0 0 2 <1 0 1934	0 0 0 <1 13 1849	0 0 1 <1 12 1920
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	IImivoase	0 0 2 <1 0 1934 321	0 0 0 <1 13 1849 269	0 0 1 <1 12 1920 284
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 2 <1 0 1934 321 355	0 0 0 <1 13 1849 269 353	0 0 1 <1 12 1920 284 372
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 2 <1 0 1934 321 355 3152	0 0 0 <1 13 1849 269 353 3127	0 0 1 <1 12 1920 284 372 3409
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	0 0 2 <1 0 1934 321 355 3152 current	0 0 0 <1 13 1849 269 353 3127 history1	0 0 1 <1 12 1920 284 372 3409 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	0 0 2 <1 0 1934 321 355 3152 current	0 0 0 <1 13 1849 269 353 3127 history1	0 0 1 <1 12 1920 284 372 3409 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	0 0 2 <1 0 1934 321 355 3152 current 158	0 0 0 <1 13 1849 269 353 3127 history1 135	0 0 1 <1 12 1920 284 372 3409 history2 120 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20	0 0 2 <1 0 1934 321 355 3152 current 158 0	0 0 0 <1 13 1849 269 353 3127 history1 135 <1	0 0 1 <1 12 1920 284 372 3409 history2 120 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20 limit/base	0 0 2 <1 0 1934 321 355 3152 current 158 0 1	0 0 0 <1 13 1849 269 353 3127 history1 135 <1 <1	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20 limit/base	0 0 2 <1 0 1934 321 355 3152 current 158 0 1 current 0.1	0 0 0 <1 13 1849 269 353 3127 history1 135 <1 <1	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >181 >20 limit/base >20	0 0 2 <1 0 1934 321 355 3152 current 158 0 1 current 0.1 5.7	0 0 0 13 1849 269 353 3127 history1 135 <1 <1 history1 0.1 5.7	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2 history2 0.1 5.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method	limit/base >181 >20 limit/base >20 >30 limit/base	0 0 2 <1 0 1934 321 355 3152 current 158 0 1 current 0.1 5.7 23.2 current	0 0 0 13 1849 269 353 3127 history1 135 <1 <1 history1 0.1 5.7 23.1 history1	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2 history2 0.1 5.6 21.9 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  METHOD  *ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D5185m  *ASTM D7844  *ASTM D7624  *ASTM D7624  *ASTM D7415  *ASTM D7414	limit/base >181 >20 limit/base >20 >30 limit/base >25	0 0 2 <1 0 1934 321 355 3152 current 158 0 1 current 0.1 5.7 23.2 current 15.2	0 0 0 1 13 1849 269 353 3127 history1 135 <1 <1 history1 0.1 5.7 23.1 history1 14.8	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2 history2 0.1 5.6 21.9 history2 13.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  Method  *ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  *ASTM D7415  Method	limit/base >181 >20 limit/base >20 >30 limit/base	0 0 2 <1 0 1934 321 355 3152 current 158 0 1 current 0.1 5.7 23.2 current	0 0 0 13 1849 269 353 3127 history1 135 <1 <1 history1 0.1 5.7 23.1 history1	0 0 1 <1 12 1920 284 372 3409 history2 120 <1 2 history2 0.1 5.6 21.9 history2



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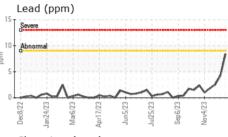


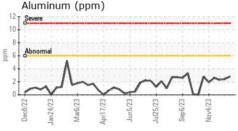


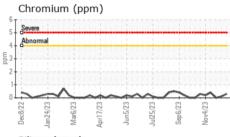
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

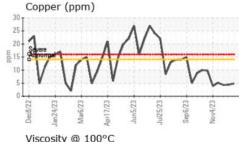
FLUID PROPER	HES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	14.0	13.9	14.0

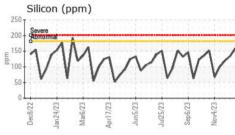
Seve	ere						
Abn	ormal						
		٨					
		11				$\Lambda_{\Lambda}$	
7	~	1	~	~	-	12	~
Dec8/22	Jan24/23	Mar6/23	Apr17/23	Jun5/23	~	Sep6/23	Nov4/23

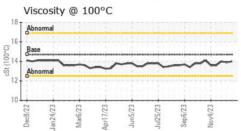


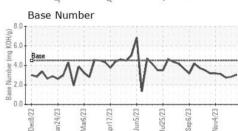
















Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 2

: WC0870078 : 06029563 : 10779354

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Dec 2023 : 12 Dec 2023 Diagnosed : Don Baldridge Diagnostician

**EDL NA Recips-Grand Blanc** 

Grand Blanc Powerstation, 2361 West Grand Blanc Road Grand Blanc, MI US 48439

> Contact: Tony Saint Marie tony.saintmarie@edlenergy.com T:

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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