

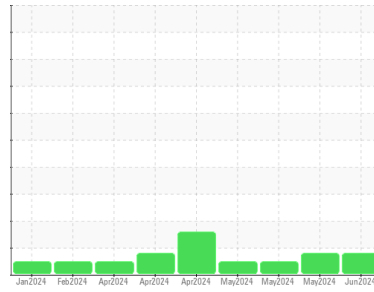


# OIL ANALYSIS REPORT



Machine Id  
**Byron Center CAT 3 BYCM03BE**  
 Component  
**Biogas Engine**  
 Fluid  
**CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)**

Sample Rating Trend



## DIAGNOSIS

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			<b>WC0877019</b>	WC0877043	WC0877040
Sample Date	Client Info			<b>07 Jun 2024</b>	28 May 2024	17 May 2024
Machine Age	hrs	Client Info		<b>68323</b>	68119	67862
Oil Age	hrs	Client Info		<b>683</b>	497	216
Oil Changed	Client Info			<b>N/A</b>	N/A	N/A
Sample Status				<b>ABNORMAL</b>	ABNORMAL	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>	---	---
Iron	ppm	ASTM D5185m	>14	<b>4</b>	0	2
Chromium	ppm	ASTM D5185m	>3	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m		<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m		<b>0</b>	0	1
Aluminum	ppm	ASTM D5185m	>5	<b>3</b>	2	2
Lead	ppm	ASTM D5185m	>8	<b>2</b>	0	1
Copper	ppm	ASTM D5185m	>5	<b>2</b>	<1	2
Tin	ppm	ASTM D5185m	>3	<b>▲ 4</b>	▲ 3	2
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>69</b>	61	27
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>9</b>	8	9
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>32</b>	29	16
Calcium	ppm	ASTM D5185m		<b>1814</b>	1650	1561
Phosphorus	ppm	ASTM D5185m		<b>358</b>	321	283
Zinc	ppm	ASTM D5185m		<b>455</b>	394	325
Sulfur	ppm	ASTM D5185m		<b>4815</b>	3673	2998

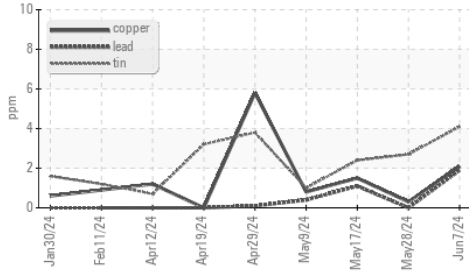
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>180	<b>176</b>	133	74
Sodium	ppm	ASTM D5185m	>20	<b>2</b>	<1	0
Potassium	ppm	ASTM D5185m	>20	<b>2</b>	2	5

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		<b>0.1</b>	0	0
Nitration	Abs/cm	*ASTM D7624		<b>4.9</b>	5.2	4.9
Sulfation	Abs/.1mm	*ASTM D7415		<b>22.0</b>	21.9	17.8

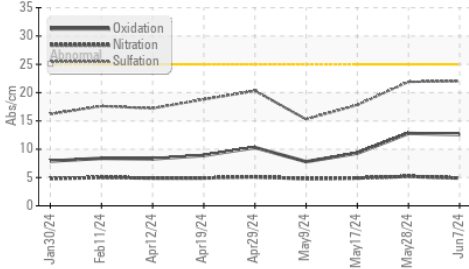


# OIL ANALYSIS REPORT

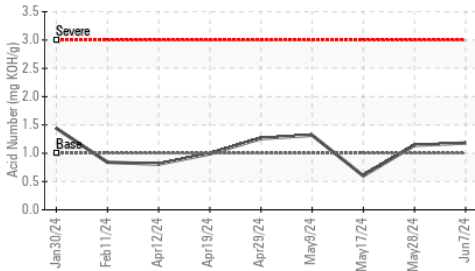
### ▲ Non-ferrous Metals



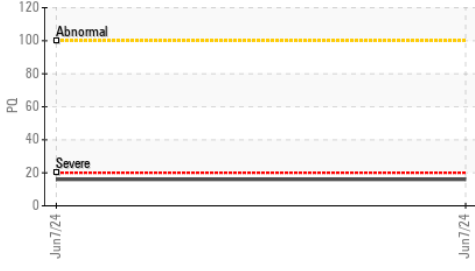
### FT-IR (Direct Trend)



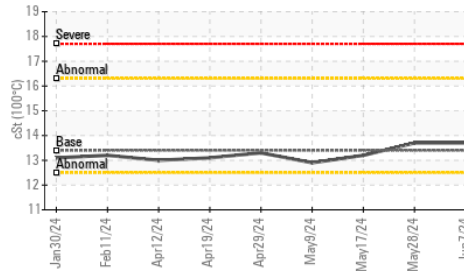
### Acid Number



### PQ



### Viscosity @ 100°C



### FLUID DEGRADATION

Method	Limit/Base	Current	History1	History2
Oxidation	Abs./1mm *ASTM D7414	<b>12.6</b>	12.8	9.3
Acid Number (AN)	mg KOH/g ASTM D8045	<b>1.18</b>	1.14	0.60
Base Number (BN)	mg KOH/g ASTM D2896	<b>3.20</b>	3.32	3.88

### VISUAL

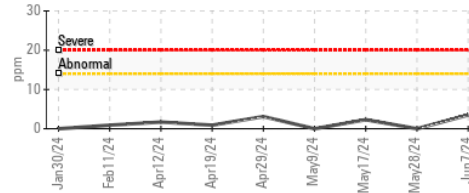
Method	Limit/Base	Current	History1	History2
White Metal	*Visual	<b>NONE</b>	NONE	NONE
Yellow Metal	*Visual	<b>NONE</b>	NONE	NONE
Precipitate	*Visual	<b>NONE</b>	NONE	NONE
Silt	*Visual	<b>NONE</b>	NONE	NONE
Debris	*Visual	<b>NONE</b>	NONE	NONE
Sand/Dirt	*Visual	<b>NONE</b>	NONE	NONE
Appearance	*Visual	<b>NORML</b>	NORML	NORML
Odor	*Visual	<b>NORML</b>	NORML	NORML
Emulsified Water	*Visual	<b>NEG</b>	NEG	NEG
Free Water	*Visual	<b>NEG</b>	NEG	NEG

### FLUID PROPERTIES

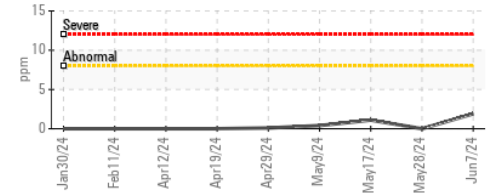
Method	Limit/Base	Current	History1	History2
Visc @ 100°C	cSt ASTM D445	<b>13.7</b>	13.7	13.2

### GRAPHS

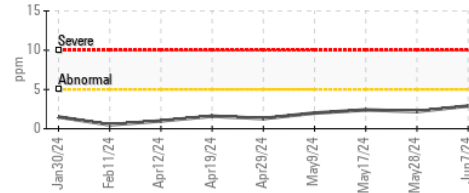
#### Iron (ppm)



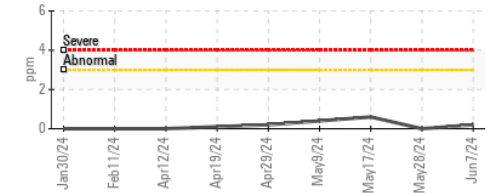
#### Lead (ppm)



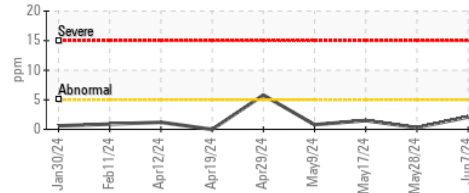
#### Aluminum (ppm)



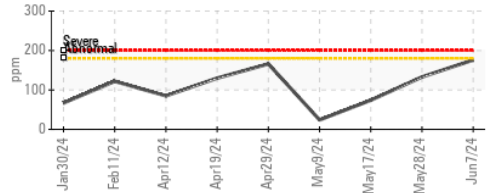
#### Chromium (ppm)



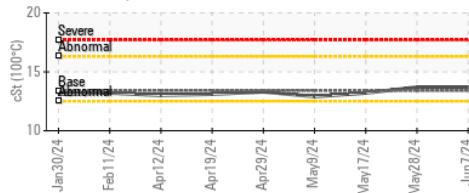
#### Copper (ppm)



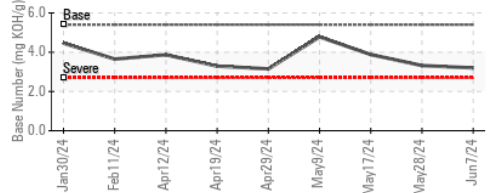
#### Silicon (ppm)



#### Viscosity @ 100°C



#### Base Number



Certificate L2367

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

**Sample No.** : WC0877019

**Lab Number** : 06204876

**Unique Number** : 11072337

**Test Package** : MOB 2 ( Additional Tests: pq )

**Received** : 10 Jun 2024

**Tested** : 12 Jun 2024

**Diagnosed** : 12 Jun 2024 - Don Baldrige

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)

**EDL NA Recips-Byron Center**

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US 49315

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