



# OIL ANALYSIS REPORT

WEAR	<b>ABNORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**Coopersville CAT 4 CPVM04BE**  
Component  
**Biogas Engine**  
Fluid  
**CHEVRON HDAX 9500 GAS ENGINE OIL 40 (105 GAL)**

## RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0871560</b>	WC0871588	WC0871505
Sample Date		Client Info		<b>08 Apr 2024</b>	28 Mar 2024	18 Mar 2024
Machine Age	hrs	Client Info		<b>79844</b>	79580	79392
Oil Age	hrs	Client Info		<b>264</b>	1	429
Filter Age	hrs	Client Info		<b>264</b>	1	429
Oil Changed		Client Info		<b>Not Changed</b>	Changed	Not Changed
Filter Changed		Client Info		<b>Not Changed</b>	Changed	Not Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

The tin level is abnormal.

Iron	ppm	ASTM D5185m	>15	<b>1</b>	1	1
Chromium	ppm	ASTM D5185m	>4	<b>&lt;1</b>	0	0
Nickel	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>6	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>9	<b>3</b>	0	1
Copper	ppm	ASTM D5185m	>6	<b>1</b>	<1	1
Tin	ppm	ASTM D5185m	>4	<b>▲ 4</b>	<1	4
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

There is no indication of any contamination in the oil.

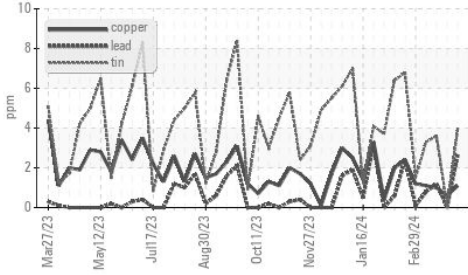
Silicon	ppm	ASTM D5185m	>181	<b>85</b>	27	104
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	<1	3
Fuel		WC Method	>4.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>.11	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0</b>	0	0.1
Nitration	Abs/cm	*ASTM D7624		<b>7.1</b>	5.2	7.2
Sulfation	Abs/.1mm	*ASTM D7415		<b>18.4</b>	15.4	19.6
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	>.11	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

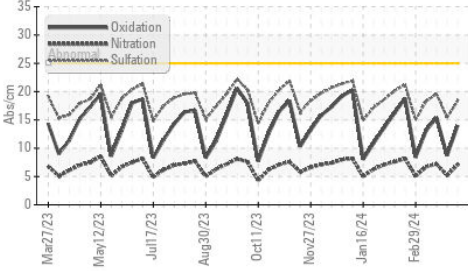
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>21	<b>2</b>	2	2
Boron	ppm	ASTM D5185m		<b>2</b>	3	2
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>3</b>	3	3
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>7</b>	6	8
Calcium	ppm	ASTM D5185m		<b>1891</b>	1715	1851
Phosphorus	ppm	ASTM D5185m		<b>296</b>	236	300
Zinc	ppm	ASTM D5185m		<b>354</b>	313	347
Sulfur	ppm	ASTM D5185m		<b>2245</b>	1946	2245
Oxidation	Abs/.1mm	*ASTM D7414		<b>14.0</b>	8.7	15.4
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	<b>1.27</b>	0.46	1.23
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	<b>4.11</b>	4.70	3.93
Visc @ 100°C	cSt	ASTM D445	13.4	<b>13.6</b>	13.2	13.8

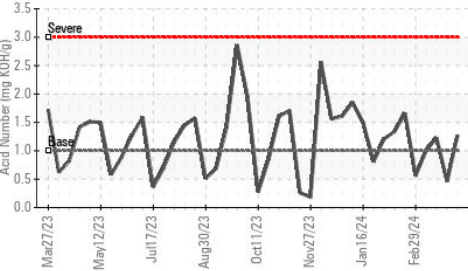
▲ Non-ferrous Metals



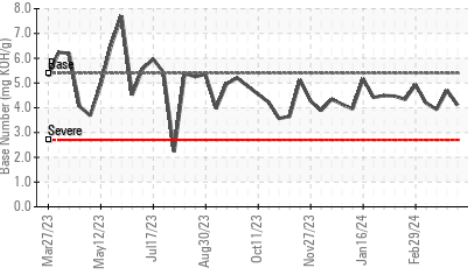
FT-IR (Direct Trend)



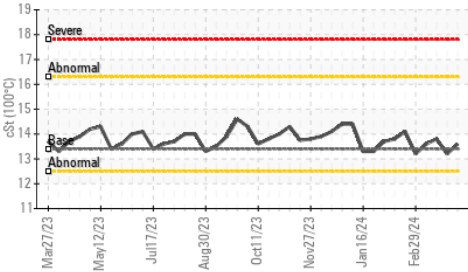
Acid Number



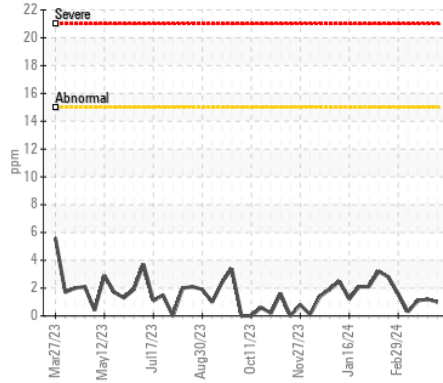
Base Number



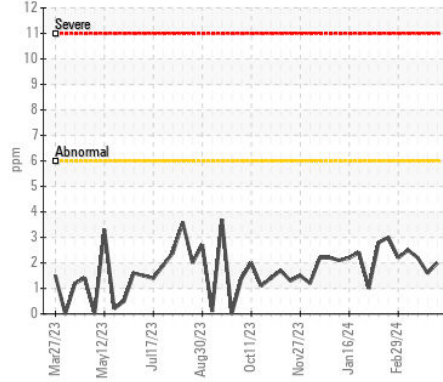
Viscosity @ 100°C



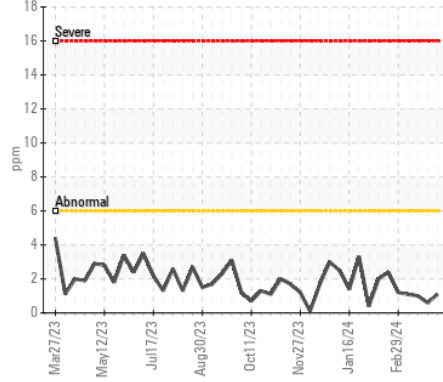
Iron (ppm)



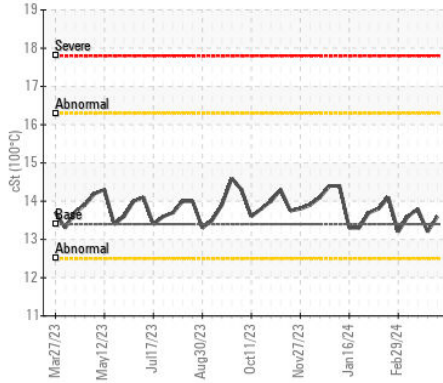
Aluminum (ppm)



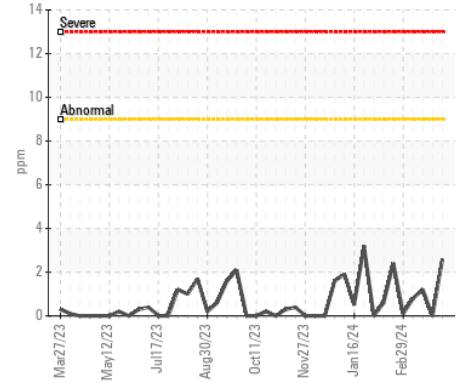
Copper (ppm)



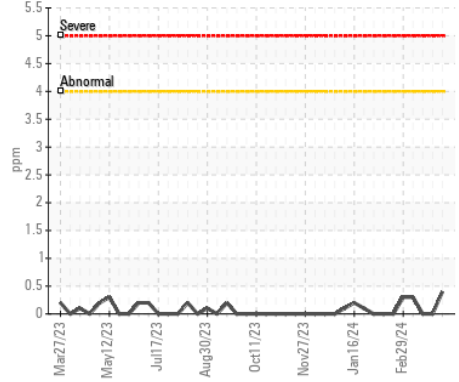
Viscosity @ 100°C



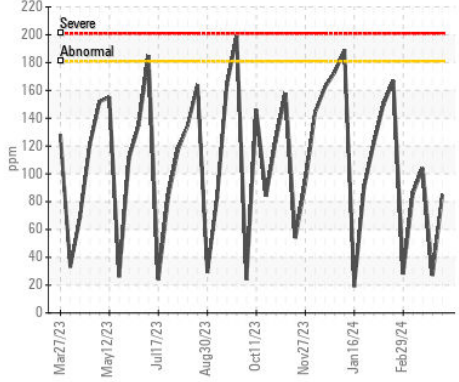
Lead (ppm)



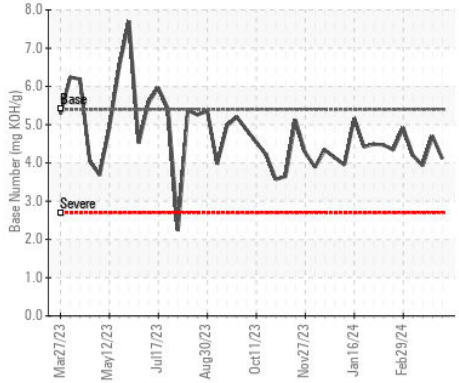
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

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

Sample No. : WC0871560

Lab Number : 06147527

Unique Number : 10977605

Test Package : MOB 2

Received : 12 Apr 2024

Tested : 15 Apr 2024

Diagnosed : 16 Apr 2024 - Sean Felton

EDL NA Recips-Coopersville

Coopersville Powerstation, 15362 68th Avenue

Coopersville, MI

US 49404

Contact: Daniel Young

daniel.young@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)