

## **OIL ANALYSIS REPORT**

Sample Rating Trend

## NORMAL



Machine Id Coopersville CAT 4 CPVM04BE

**Biogas Engine** 

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (105 GAL)





### 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.

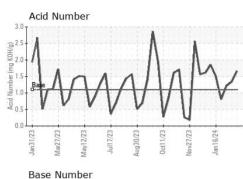
### Fluid Condition

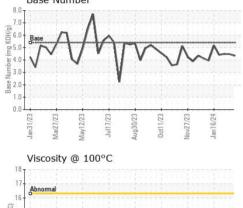
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

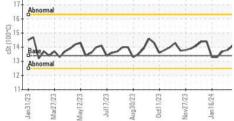
SAMPLE INFORM	ATION	method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		WC0871531	WC0871554	WC0871550
Sample Date		Client Info		22 Feb 2024	14 Feb 2024	05 Feb 2024
Machine Age	hrs	Client Info		78813	78626	78423
Oil Age	hrs	Client Info		813	626	423
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	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	3	3	2
Chromium	ppm	ASTM D5185m	>4	0	0	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	3	3	1
Lead	ppm	ASTM D5185m	>9	2	<1	0
Copper	ppm	ASTM D5185m	>14	2	2	<1
Tin	ppm	ASTM D5185m	>4	7	6	4
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		2	2	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		2	0	<1
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		11	11	8
Calcium	ppm	ASTM D5185m		2026	1914	1908
Phosphorus	ppm	ASTM D5185m		300	289	288
Zinc	ppm	ASTM D5185m		388	369	356
Sulfur	ppm	ASTM D5185m		1957	1848	1818
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	167	150	122
Sodium	ppm	ASTM D5185m		1	<1	<1
Potassium	ppm	ASTM D5185m	>20	2	<1	0
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.1	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	8.2	7.6	7.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.2	20.1	18.6
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.8	16.2	13.6
Acid Number (AN)	mg KOH/g	ASTM D8045	1.1	1.66	1.34	1.21
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	4.34	4.47	4.49
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# **OIL ANALYSIS REPORT**







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
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	14.1	13.8	13.7
GRAPHS						
Iron (ppm)				Lead (ppm)		
25 Severe	1003110		15 	Severe		
20			10			
			mdd	d		
				j <b>-</b>		
5 Mars	$\sim$	. ~	~	2.4	~^	$\sim$
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Jan 31/23 Mar 27/23 Jul 17/23	Aug30/23	0ct11/23 Nov27/23 Jan16/24		Jan 31/23 Mar 27/23 May 12/23	Jul17/23 Aug30/23 Oct11/23	Nov27/23 Jan 16/24
Aluminum (ppm)	4			Chromium (p		2 ,
<sup>12</sup> Severe		100000000000	11111			
10-				Abnormal		
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4						
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Copper (ppm)	A		8	¬ ≥ ≤ Silicon (ppm)	, A O	2 7
20 T			250			
Severe 15 - Abnormal			200	Severe		
-			е <sup>150</sup>	<b>—</b>	A AA.	ACI /
툡 10			E 100	$ \Lambda  $		VV V
	~ ~	~	50		VVV	v V
						с. <del>4</del>
Jan31/23 Mar27/23 Jul17/23	Aug30/23	Oct11/23 Nov27/23 Jan16/24		Jan31/23 Mar27/23 May12/23	Jul17/23 - Aug30/23 - Oct11/23 -	Nov27/23 Jan 16/24
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Viscosity @ 100°C			8.0	Base Number		100000000000000000
Abnormal	1111		(B/H0		0,000 000	
()-16 ()-0			B B.(	Base	MAA	A. A-
(C) 00 14 Base Abnormal	$\sim$	n	9.6.0 Base Number (mg KOH4(d)	VV	V	~~~~
12-		4	N 2.(	)		
10			0.0	]		
Jan31,23 Mar27,23 May12,23 Jul17,23	Aug30/23	Oct11/23 Nov27/23 Jan16/24		Jan31/23 Mar27/23 May12/23	Jul17/23 - Aug30/23 - Oct11/23 -	Nov27/23 - Jan16/24 -
Jan Mar Jul	Aug	Nov		Jan Mar	Aug	Nov



Unique Number : 10898519 Diagnosed : 28 Feb 2024 - Jonathan Hester Test Package : MOB 2 Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. daniel.young@edlenergy.com \* - 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)

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

Received

Tested

: 26 Feb 2024

: 27 Feb 2024

Report Id: EDLCOO [WUSCAR] 06100289 (Generated: 02/28/2024 14:17:37) Rev: 1

Laboratory

Sample No. : WC0871531

Lab Number : 06100289

Submitted By: Chad Conroy

**EDL NA Recips-Coopersville** 

Coopersville Powerstation, 15362 68th Avenue

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Coopersville, MI

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