

## **OIL ANALYSIS REPORT**



Sample Rating Trend





Machine Id SAVM03BE (S/N GZJ00168) Component

Biogas Engine

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (141 GAL)

AS ENGINE OIL (1		p2021 Aug20	22 Jan2023 Feb2023			
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0788929	WC0788926	WC0788923
Sample Date		Client Info		30 Oct 2023	23 Oct 2023	16 Oct 2023
Machine Age	hrs	Client Info		172411	172317	172151
Oil Age	hrs	Client Info		70	911	744
Oil Changed		Client Info		Not Changd	Changed	Not Change
Sample Status				NORMAL	SEVERE	SEVERE
CONTAMINATIC	N	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	2	4	4
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	2	2
Lead	ppm	ASTM D5185m	>9	0	1	1
Copper	ppm	ASTM D5185m	>6	2	4	2
Tin	ppm	ASTM D5185m	>4	<1	4	4
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		10	3	2
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		17	7	6
Manganese	ppm	ASTM D5185m		0	0	<1
Magnesium	ppm	ASTM D5185m		12	10	10
Calcium	ppm	ASTM D5185m		1715	1788	1829
Phosphorus	ppm	ASTM D5185m		269	281	270
Zinc						
	ppm	ASTM D5185m		327	321	325
Sulfur	ppm	ASTM D5185m ASTM D5185m		327 1833	321 1649	325 1759
Sulfur CONTAMINANT	ppm		limit/base			1759
CONTAMINANT	ppm	ASTM D5185m		1833	1649	1759
CONTAMINANT: Silicon	ppm S	ASTM D5185m method		1833 current	1649 history1	1759 history2
CONTAMINANTS Silicon Sodium	ppm S ppm	ASTM D5185m method ASTM D5185m	>181	1833 current 53	1649 history1 365	1759 history2 276
CONTAMINANTS Silicon Sodium	ppm S ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	>181	1833 current 53 <1	1649 history1 365 0	1759 history2 ● 276 <1 1
CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm S ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	>181 >20 limit/base	1833 current 53 <1 7 current 0	1649 history1 ● 365 0 0 history1 0	1759 history2 276 <1 1 history2 0
CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm 5 ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method	>181 >20 limit/base	1833 current 53 <1 7 current	1649 history1 ● 365 0 0 history1	1759 history2 276 <1 1 history2
CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm 5 ppm ppm ppm %	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	>181 >20 limit/base	1833 current 53 <1 7 current 0	1649 history1 ● 365 0 0 history1 0	1759 history2 276 <1 1 history2 0
CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm pm % Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7824	>181 >20 limit/base >20	1833 current 53 <1 7 current 0 5.3	1649 history1 ● 365 0 0 history1 0 6.3	1759 history2 276 <1 1 history2 0 6.1 18.0
CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm pm % Abs/cm Abs/.1mm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	>181 >20 limit/base >20 >30	1833 current 53 <1 7 current 0 5.3 15.3	1649 history1 365 0 0 history1 0 6.3 18.7	1759 history2 276 <1 1 history2 0 6.1 18.0
Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm kbs/cm kbs/cm kbs/1mm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	>181 >20 limit/base >20 >30 limit/base	1833 current 53 <1 7 current 0 5.3 15.3 current	1649 history1 365 0 0 history1 0 6.3 18.7 history1	1759 history2 276 <1 1 history2 0 6.1 18.0 history2

## BIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

## Wear

All component wear rates are normal.

#### Contamination

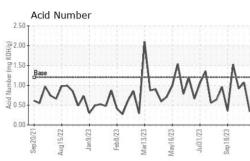
There is no indication of any contamination in the oil.

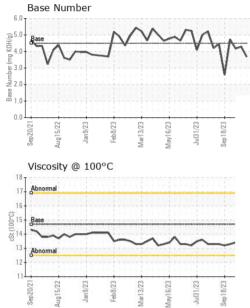
## Fluid Condition

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.



# **OIL ANALYSIS REPORT**





10101010		VISUAL		method				history2
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
A		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
11.1	MAN	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
NV	"WWI	Debris		*Visual	NONE	NONE	NONE	NONE
/ N			scalar			-		
n n		_ Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Mar13/23 May16/23	Jul31/23 Sep18/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Ma	Se	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
~ ~	2	Free Water	scalar	*Visual		NEG	NEG	NEG
V V ~	MAM	FLUID PROPER		method	limit/base	current	history1	history2
	V .	Visc @ 100°C	cSt	ASTM D445	14.7	13.1	13.5	13.4
		GRAPHS						
		Iron (ppm)				Lead (ppm)		
		25 Severe	10001000		15	Severe		
Mar13/23 May16/23	Jul31/23 Sep18/23	20			10	The second		
Mar May	Jul	E 15 - Abnormal			E E E E E E E E E E E E E E E E E E E	- Abnormal		
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		A S	2	S JL	5			Ji Ji
~~~		Aluminum (ppm)	5			Chromium (pp	om)	
		12 Severe			5	Severe		
		8-			4	Abnormal		
23 -	23 -	E 6- Abnormal			Ed 3			
Mar13/23 May16/23	Jul31/23 Sep18/23	4			2			
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		Sep20/21 Aug15/22 - Jan9/23 - Feb8/23 -	Mar13/23	May16/23 . Jul31/23 . Sen18/23		Sep20/21- Aug15/22 - Jan9/23 -	Feb8/23 - Mar13/23 - May16/23 -	Jul31/23 Sep18/23
			M	Ϋ́Υ	5			г <sub>й</sub>
		Copper (ppm)			500	Silicon (ppm)		
		Severe				the transmission of the		
		15-			400		1	
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				^	E 200	IV V	M	MA
		Abnormal	~	An	₩ 200 100	IV V	W	har
		Abopermel			100	Nº V		
		Abopermel	hari 3/23	lay16/23 - V Jul31/23 - V Jul31/23 - V	100	Nº V	Feb8/23 Aar13/23 Iay16/23	1013 1/23 +
		Sep20(21)	N	May16/23 - V Jul31/23 - V San18/73	100	Sep20/21	Feb8/23 Mari 13/23 May 16/23	Jul31/23
		Abnumel 5 0 10702/ds Viscosity @ 10000	N	May16/23		EZ/Guer Base Number	Feb8/23 +	Jul31/23
		Abnamel 5 0 12751 12752 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1275 1	N	May 16/23 + V		EZ/Guer Base Number	Feb823 Mar1323 May1622	Jul31/23
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		Viscosity @ 100° Abnormal CD-00114 Abnormal Abnormal Abnormal	N	May 16/23 - 7	(0) HOY DUI JANUAR 4.0 (0) HOY DUI JANUAR 4.0 (0) HOY DUI JANUAR 4.0 0 0 0 0 0 0 0 0 0 0 0 0 0	E2/Guer Base Number	Habi23	Sapi Ba23
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d	Laboratory	Abnormal Abnormal (0,000) Viscosity @ 10000 Abnormal Abnormal Abnormal Abnormal	C	May16/23	6.0 (b)HOX bull sources (b)HOX bull sources (c) (c) (c) (c) (c) (c) (c) (c) (c) (c)	Sep 20/21 Aug 15/22 Jan 9/23 Jan 9/23	Feb8/23	Jul31/23 Sep 18/23
NAR	Laboratory Sample No.	Manage of the second se	C EZELINEW 501 Madia Received	EZ/91/kew son Ave., Ca d : 01	400 100 0 100 0 100 0 0 100 0 0 0 0 0 0 0 0 0 0 0 0	Sep20/21 Aug15/22 Jan9/23 Jan9/23	EZUGUÁN EZUGUÁN EDL NA Recij EY POWER STATION, 3	EZI (2014) EZI (2
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	Laboratory Sample No. Lab Number Unique Numbe	WearCheck USA - : WC0788929 : 05995871 r : 10724231	C EZELINEW 501 Madia Received	EZ/91/Jew son Ave., Ca d : 01 ed : 03	400 100 0 100 0 100 0 0 100 0 0 0 0 0 0 0 0 0 0 0 0	LIZUGZdas Base Number CZZSIBhry Base Number CZZSIBhry CZZSIBhry SAND VALLE	EZCIUME EDL NA Recip EY POWER STATION, 3 COL	CZ C
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