

## **OIL ANALYSIS REPORT**

Sample Rating Trend

NORMAL



Machine Id SJNM02BE Component

Biogas Engine

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- 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

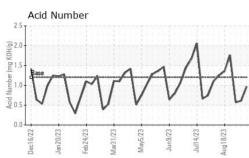
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

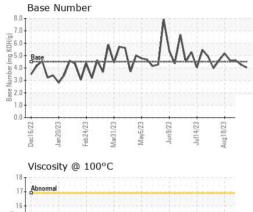
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0764401	WC0764398	WC0764415
Sample Date		Client Info		22 Sep 2023	15 Sep 2023	08 Sep 2023
Machine Age	hrs	Client Info		110688	110519	110353
Oil Age	hrs	Client Info		462	297	127
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	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	2	2
Chromium	ppm	ASTM D5185m	>4	0	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	<1	<1	0
Lead	ppm	ASTM D5185m	>9	2	<1	0
Copper	ppm	ASTM D5185m	>6	2	2	0
Tin	ppm	ASTM D5185m	>4	3	3	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		4	4	4
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		5	5	2
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m		20	18	23
Calcium	ppm	ASTM D5185m		1932	1989	1770
Phosphorus	ppm	ASTM D5185m		304	287	279
Zinc	ppm	ASTM D5185m		365	343	332
Sulfur	ppm	ASTM D5185m		2289	2361	2070
CONTAMINANTS		method	limit/base		history1	history2
Silicon	ppm	ASTM D5185m	>181	167	121	61
Sodium	ppm	ASTM D5185m	× 20	<1	<1	<1
Potassium	ppm	ASTM D5185m		<1	0	0
INFRA-RED	0/	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	00	0	0	0
Nitration	Abs/cm	*ASTM D7624		6.5	6.9	5.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	20.6	15.6
FLUID DEGRADA		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.7	12.2	8.5
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	0.97	0.61	0.57
Base Number (BN)	mg KOH/g	ASTM D2896	4.5	4.04	4.27	4.62

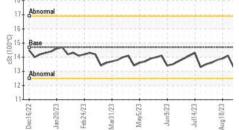


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VICLIAL







		VISUAL		method	limit/base	current	history1	history2	
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	Λ	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
11	$\Lambda \Lambda$	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
TIT	71/1	Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
VVV		Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
723 -	23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Mar31/23 May5/23	Jull 4/23 Aug 1 8/23	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
-	H	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG	
		Free Water	scalar	*Visual	20.1	NEG	NEG	NEG	
Λ				VISUAI		NEG	NEG		
NO A	1	FLUID PROPERT	IES	method	limit/base	current	history1	history2	
N VV	ANA/	Visc @ 100°C	cSt	ASTM D445	14.7	13.6	13.6	13.3	
		GRAPHS							
		Iron (ppm)				Lead (ppm)			
n n n		25 20 Severe			20	10.0110.00100			
Mar31/23 May5/23	Jul14/23 Aug18/23	20 - 0			15	5 Severe	A		
Ma	Jul	E 15 - Abnormal			۾ 10	Abnormal	1	_	
°C					5		ALV	11	
			~	VIC	$\sim$	1		VL	
			/23	23	0		/23	/23	
		Dec16/22 Jan20/23 Feb24/23 Mar31/23	May5/23	Jun9/23 Jul14/23 Aua18/23	2	Dec16/22 Jan20/23 Feb24/23	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23	
A	1 1	Aluminum (ppm)		4		Chromium (pp		~	
	-1-1	12 Severe			6				
		10-			5	Abnormal			
		8 E 6 Abnormal			4 84.3	1 T U			
Mar31/23 May5/23	Jul14/23 Aug18/23	4			2				
Ma	Jul	2 mm	~ /	MA.	٨	1			
					0				
		Dec16/22 Jan20/23 Feb24/23 Mar31/23	May5/23	Jun9/23 Jul14/23 Aua18/23	1	Dec16/22 Jan20/23 Feb24/23	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23	
			2	C L A			2 7	J. Au	
		Copper (ppm)		122220000000000000000000000000000000000	300	Silicon (ppm)			
		15-	in tim		250		1 4	A A	
					_ 200	Severe Announce of the second			
		E 10-			틆 150		11/1		
		5 - Abnormal		,	100	V	v v v	VV	
			~	~~~		, <b></b>			
		Dec16/22 Jan20/23 Feb24/23 Mar31/23	May5/23	Jun9/23 . Jul14/23 . Aua18/23 .		Dec16/22 Jan20/23 Feb24/23	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23	
			Ma	Jul		Jan. Feb.	Mar Ma	Jul Aug	
		Viscosity @ 100°C			Base Number				
		Abnormal			8.0 (b)(HO) & 6.0 (b)(HO) & 6.0 (c)(HO) & 6.	The second s	٨		
		De Base			9 6.0 2	Base	Mr. N	Ann	
		16 (3.00) 14 Abnormal		1	V- ja 4.0	N/			
		경 12-			Wn 2.0			COURSES STREET	
		10			<sup>88</sup> 0.0				
			5/23 -	9/23 - 4/23 -	0.0	6/22 - 0/23 - 4/2	1/23 5/23	4/23 - 8/23 -	
		Dec16/22 Jan20/23 Feb24/23 Mar31/23	May5/23	Jun9/23 Jul14/23 Aua18/23		Dec16/22 Jan20/23 Feb24/23	Mar31/23 May5/23 Jun9/23	Jul14/23 Aug18/23	
<u></u>	Laboratory	: WearCheck USA - 5					DL NA Recips		
ANAB	Sample No. Lab Number		Receive Diagnos		Sep 2023 Sep 2023	South Jorda	an Powerstation, 104	73 S. Bacchus Hwy. uth Jordan, UT	
TESTING LABORATORY	Unique Number		Diagnos		ig Bogart		30	US 84095	
Certificate L2367	Test Package	: MOB 2			5 9 1		Conta	ct: Aaron Klein	
To discuss th	nis sample report, o	contact Customer Servi						edlenergy.com	
		re outside of the ISO 17						T:	
Statements of	contormity to spec	ifications are based on th	e simple	acceptance of	decision rule (	JCGM 106:2012)		F:	