

OIL ANALYSIS REPORT

Sample Rating Trend



Keye

Machine Id **PECM01BE** Component

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (150 GAL)

S ENGINE OIL 40 (150 GAL)								
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2		
Sample Number		Client Info		WC0788394	WC0788276	WC078828		
Sample Date		Client Info		21 Feb 2024	07 Feb 2024	23 Jan 2024		
Machine Age	hrs	Client Info		114589	114250	1113898		
Oil Age	hrs	Client Info		675	335	60		
Oil Changed		Client Info		Not Changd	Not Changd	Changed		
Sample Status				SEVERE	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	history		
Iron	ppm	ASTM D5185m	>15	5	0	1		
Chromium	ppm	ASTM D5185m	>4	<1	0	<1		
Nickel	ppm	ASTM D5185m	>2	<1	0	<1		
Titanium	ppm	ASTM D5185m		<1	0	<1		
Silver	ppm	ASTM D5185m	>5	<1	0	0		
Aluminum	ppm	ASTM D5185m	>6	<1	<1	3		
Lead	ppm	ASTM D5185m	>9	2	2	<1		
Copper	ppm	ASTM D5185m	>6	3	<1	1		
Tin	ppm	ASTM D5185m	>4	4	2	1		
Vanadium	ppm	ASTM D5185m		<1	0	<1		
Cadmium	ppm	ASTM D5185m		<1	0	<1		
ADDITIVES		method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185m		12	12	11		
Barium	ppm	ASTM D5185m		5	0	0		
Molybdenum	ppm	ASTM D5185m		6	2	4		
Manganese	ppm	ASTM D5185m		<1	1	<1		
Magnesium	ppm	ASTM D5185m		23	18	20		
Calcium	ppm	ASTM D5185m		1934	1715	1736		
Phosphorus	ppm	ASTM D5185m		270	218	272		
Zinc	ppm	ASTM D5185m		380	330	330		
Sulfur	ppm	ASTM D5185m		3716	2564	2512		
CONTAMINANTS		method	limit/base		biotoput	history		
				current	history1			
Silicon	ppm	ASTM D5185m	>181	235	117	60		
Silicon Sodium		ASTM D5185m ASTM D5185m						
	ppm		>181	e 235	117	60		
Sodium	ppm ppm	ASTM D5185m	>181	235 0	117 <1	60 0		
Sodium Potassium	ppm ppm	ASTM D5185m ASTM D5185m	>181 >20	235 0 2	117 <1 <1	60 0 3		
Sodium Potassium INFRA-RED	ppm ppm ppm	ASTM D5185m ASTM D5185m method	>181 >20 limit/base	 235 0 2 current 	117 <1 <1 history1	60 0 3 history2		
Sodium Potassium INFRA-RED Soot %	ppm ppm ppm	ASTM D5185m ASTM D5185m method *ASTM D7844	>181 >20 limit/base	 235 0 2 current 0.1 	117 <1 <1 history1 0	60 0 3 history2		
Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	>181 >20 limit/base >20	 235 0 2 Current 0.1 6.1 	117 <1 <1 history1 0 5.6	60 0 3 history2 0 5.2 16.9		
Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	>181 >20 limit/base >20 >30	 235 0 2 current 0.1 6.1 23.8 	117 <1 <1 history1 0 5.6 20.6	60 0 3 history2 0 5.2		
Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm % Abs/cm Abs/cm Abs/1mm	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7624 Method	>181 >20 limit/base >20 >30 limit/base	 235 0 2 current 0.1 6.1 23.8 current 	117 <1 <1 history1 0 5.6 20.6 history1	60 0 3 history2 0 5.2 16.9 history2		

Recommendation

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

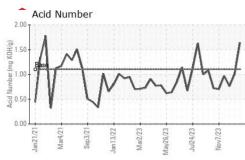
Fluid Condition

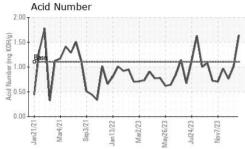
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

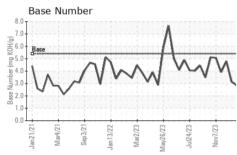
Submitted By: JASON JONES

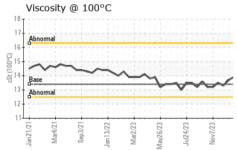


OIL ANALYSIS REPORT









	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Λ /	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Ath I	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
V VV	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Jul24/23 Nov7/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
No	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
Λ /	FLUID PROPERT	IES	method	limit/base	current	history1	history2
Athat	Visc @ 100°C	cSt	ASTM D445	13.4	13.9	13.7	13.3
V VV	GRAPHS						
	Iron (ppm)				Lead (ppm)		
en en	25 Severe			1 	Severe		
Jul24/23	20-			1	0 - Abnormal		
	15			Шd			٨
	5 m		٨				.//
		\sim	\sim	N			NV
	Jan 21/21 Mar4/21 Sep 3/21	Mar2/23	May26/23 Jul24/23 Nov7/23		Jan 21/21 Mar4/21 Sep 3/21	Jan 13/22 Mar2/23 May26/23	Jul24/23 Nov7/23
	Jan Van	Ma	May. Juľ		Jan Mi Se	Jan Ma May	Jul
	Aluminum (ppm)				Chromium (p	pm)	
	12 10				5 Severe		
	8-				4 - Abnormal		
Jul24/23 -	E 6- Abnormal		٨	mdd			
Jul24/23 Nov7/23			1	^	2		
		~	J.V.			~~~~~	~~~
	Jan21/21 Mar4/21 Sep3/21 Jan13/22	Mar2/23 -	May26/23 Jul24/23 Nov7/23		Jan 21/21 Mar4/21 Sep 3/21	Jan 13/22 Mar2/23 May26/23	Jul24/23 Nov7/23
	1010	M	May Nu Nu		-	Jar May	nr Nv
i i i i i i i i i i i i i i i i i i	Copper (ppm)			25	Silicon (ppm)		
	15 -		10001000	20	Severe		
$\sim\sim\sim$				_ 15		. 11/1.	AMAI
	E 10 - Abnormal			und 10		VI, NV	$\langle V^* \rangle N$
	5			5	0-1 V	V V	V VV
Jul24/23 Nov7/23		<u>~</u>	<u> </u>	\sim	٥	3 3	
~ –	Jan 21/21 Mar4/21 Sep 3/21 Jan 13/22	Mar2/23 -	May26/23 Jul24/23 Nov7/23		Jan 21/21 Mar4/21 Sep 3/21	Jan 13/22 Mar2/23 May26/23	Jul24/23 Nov7/23
	Viscosity @ 100°C	2	P T N				
	18 - 80 -						
	_16 - Abnormal			S/HOX	0 Base	/	
	Abnormal Base Abnormal Base Abnormal	~		Bull 14		Nant	mm
	to hormal			(B)(0) (B	w	V ~~ M	
	12-			e 2.			
		/23 -	/23 -	0.	0	/22 /23 -	/23
	Jan 21/21 Mar4/21 Sep 3/21 Jan 13/22	Mar2/23	May26/23 Jul24/23 Nov7/23		Jan21/21 Mar4/21 Sep3/21	Jan 13/22 Mar2/23 May26/23	Jul24/23 Nov7/23
1		Ma 11					- D D
Laboratory Sample No.	: WearCheck USA - 501 : WC0788394	Madiso Rece i		, NC 27513 Feb 2024		EDL NA Recij W POWER STATION, 2993	SWHETHERINGTON IN
	: 06099291	Teste		Feb 2024		· ·	ALDOSTA, GA
Unique Number	: 10897521	Diagr		Feb 2024 - Se	ean Felton		US 31601
Test Package	: MOB 2		00 007 1060				ASON JONES

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)

Certificate L2367

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