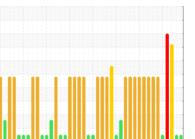


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id DECM02BE (S/N 4EK00128)

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (100 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment:

Top Up Amount: 15 GAL)

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

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 acceptable for the time in service.

Sample Date Client Info 10 Apr 2024 03 Apr 2024 12 Mar 2057 60043 Machine Age hrs Client Info 60721 60557 60043 Oil Age hrs Client Info 60557 58088 58088 Oil Changed Client Info Oil Adde Changed Oil Adde Sample Status NORMAL NORMAL SEVERE CONTAMINATION method Imitibase current history1 history1 Fuel WC Method >4.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG My Coll WC Method NEG NEG NEG WEAR METALS method Imitibase current history1 history1 Iron ppm ASTM D5185m >15 <1 1 4 Chromium ppm ASTM D5185m >4 <1 0 <1 Iron ppm ASTM D5185m >4 <1 0 <1	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Date Client Info 10 Apr 2024 03 Apr 2024 12 Mar 2 Machine Age hrs Client Info 60721 60557 60043	Sample Number		Client Info		WC0732896	WC0732894	WC0732890
Machine Age hrs Client Info 60721 60557 60043 Oil Age hrs Client Info 60557 58088 58088 Oil Changed Client Info Oil Added Changed Oil Added Sample Status Donath NORMAL NORMAL SEVERE CONTAMINATION method limit/base current history1 history1 Fuel WC Method >4.0 < 1.0 < 1.0 < 1.0 Water WC Method NEG NEG NEG WEG NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >15 <1 1 4 Chromium ppm ASTM D5185m >15 <1 0 <1 Intra ppm ASTM D5185m >4 <1 0 <1 Itanium ppm ASTM D5185m >6 2 1			Client Info		10 Apr 2024	03 Apr 2024	12 Mar 2024
Dil Age		hrs			•		
Oil Changed Sample Status Client Info Oil Added NORMAL NORMAL Changed SEVERE SEVERE SEMBLE Oil Added NORMAL NORMAL Oil Added NORMAL SEVERE SEVERE SEMBLE Changed Oil Added NORMAL SEVERE SEVERE SEMBLE Oil Added NORMAL SEVERE SEVERE SEMBLE Oil Added NORMAL SEMBLE NEG Oil Added NorMAL SEMBLE NEG Oil Added NorMAL SEMBLE </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>58088</td>							58088
NORMAL NORMAL SEVERE	-					Changed	Oil Added
Fuel					NORMAL		SEVERE
Water WC Method 3.11 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >15 <1	CONTAMINATION	l	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >15 <1	Water		WC Method	>.11	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 0 <1 Nickel ppm ASTM D5185m <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>15	<1	1	4
Titanium	Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Silver	Nickel	ppm	ASTM D5185m		<1	0	<1
Silver	Titanium		ASTM D5185m		<1	0	<1
Aluminum ppm ASTM D5185m >6 2 1 2 Lead ppm ASTM D5185m >9 3 0 4 Copper ppm ASTM D5185m >6 5 4 ▲ 31 Tin ppm ASTM D5185m >4 2 <1	Silver		ASTM D5185m		0		0
Lead ppm ASTM D5185m >9 3 0 4 Copper ppm ASTM D5185m >6 5 4 ▲ 31 Tin ppm ASTM D5185m >4 2 <1	Aluminum	ppm	ASTM D5185m	>6	2	1	2
Copper ppm ASTM D5185m >6 5 4 31 Tin ppm ASTM D5185m >4 2 <1	Lead				3	0	4
Tin	Copper		ASTM D5185m	>6	5	4	A 31
Vanadium ppm ASTM D5185m <1 0 <1 Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 2 3 9 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 8 6 15 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 19 6 10 Calcium ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >21 5 5						<1	
Cadmium ppm ASTM D5185m <1 0 <1 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 2 3 9 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 8 6 15 Manganese ppm ASTM D5185m 19 6 10 Magnesium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3<	Vanadium	• •	ASTM D5185m		<1	0	<1
Boron	Cadmium		ASTM D5185m		<1		<1
Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 8 6 15 Manganese ppm ASTM D5185m -1 0 -1 Magnesium ppm ASTM D5185m 19 6 10 Calcium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 8 6 15 Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 19 6 10 Calcium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % *ASTM D7844	Boron	ppm	ASTM D5185m		2	3	9
Manganese ppm ASTM D5185m <1 0 <1 Magnesium ppm ASTM D5185m 19 6 10 Calcium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 19 6 10 Calcium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>8</td> <td>6</td> <td>15</td>	Molybdenum	ppm	ASTM D5185m		8	6	15
Calcium ppm ASTM D5185m 1942 1921 1764 Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation	Manganese	ppm	ASTM D5185m		<1	0	<1
Phosphorus ppm ASTM D5185m 303 265 284 Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Magnesium	ppm	ASTM D5185m		19	6	10
Zinc ppm ASTM D5185m 382 334 371 Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Calcium	ppm	ASTM D5185m		1942	1921	1764
Sulfur ppm ASTM D5185m 2696 2482 2389 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Phosphorus	ppm	ASTM D5185m		303	265	284
CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Zinc	ppm	ASTM D5185m		382	334	371
Silicon ppm ASTM D5185m >181 111 89 100 Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Sulfur	ppm	ASTM D5185m		2696	2482	2389
Sodium ppm ASTM D5185m >21 5 5 66 Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 0 4 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Silicon	ppm	ASTM D5185m	>181	111		100
INFRA-RED	Sodium	ppm	ASTM D5185m	>21	5	5	66
Soot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 5.3 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Potassium	ppm	ASTM D5185m	>20	3	0	4
Nitration Abs/cm *ASTM D7624 5.3 5.6 Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 16.7 16.0 16.7 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Soot %	%	*ASTM D7844		0	0	0
FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Nitration	Abs/cm	*ASTM D7624		5.3	5.3	5.6
Oxidation Abs/.1mm *ASTM D7414 9.3 8.9 10.4	Sulfation	Abs/.1mm	*ASTM D7415		16.7	16.0	16.7
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 1.0 0.70 0.70 0.47	Oxidation	Abs/.1mm	*ASTM D7414		9.3	8.9	10.4
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.70	0.70	0.47

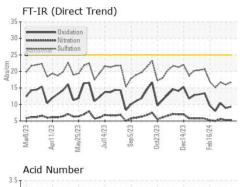
Base Number (BN) mg KOH/g ASTM D2896 5.4

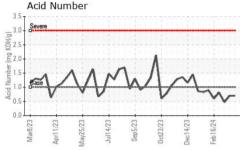
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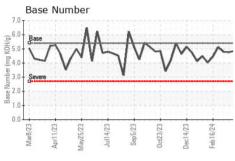
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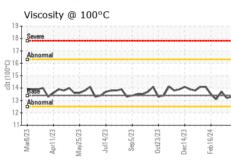


OIL ANALYSIS REPORT





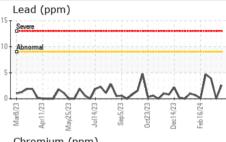


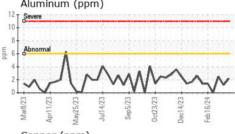


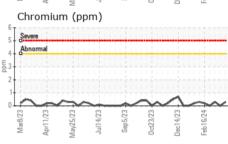
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>.11	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

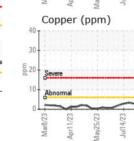
FLUID PROPER	IIIES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	13.3	13.2	13.7

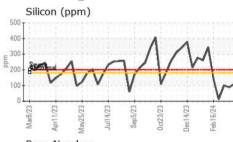
Seve			1 1 1 1 1		1		
Abn	ormal				-		
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Mar8/23	· ·	~	n	Sep5/23	0ct23/23	Dec14/23	Feb16/24

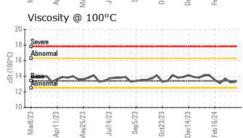


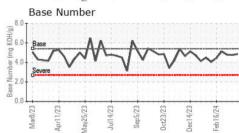
















Certificate 12367

Laboratory Sample No.

Lab Number : 06147544

: WC0732896 Unique Number : 10977622 Test Package : MOB 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 12 Apr 2024 **Tested** : 15 Apr 2024

Diagnosed : 16 Apr 2024 - Sean Felton

Contact: JEFF SUMMERS jeff.summers@energydevelopments.com

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)

Report Id: ENETRI [WUSCAR] 06147544 (Generated: 04/16/2024 13:06:22) Rev: 1

EDL NA Recips-Decatur 620 LANDFILL DRIVE

TRINITY, AL

US 35673

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