

OIL ANALYSIS REPORT

Sample Rating Trend

DIRT



Machine Id Coopersville CAT 1 CPVM01BE

Biogas Engine

CHEVRON HDAX 6500 LFC

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal.

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 Number Client Info WC0819476 WC0819449 WC0819448 Sample Date Client Info 23 Aug 2023 14 Aug 2023 04 Aug 2024 04	GAS ENGINE OIL (-	GAL)	12022 Sep20	22 Nov2022 Dec2022	Feb2023 Mar2023 May2023	Jul2023	
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs	Sample Number		Client Info		WC0819476	WC0819449	WC0819445
Dil Age	Sample Date		Client Info		23 Aug 2023	14 Aug 2023	04 Aug 2023
Dil Changed Client Info Not Changed ABNORMAL NORMAL NORMAL NORMAL NORMAL	Machine Age	hrs	Client Info		11813	11597	11357
ABNORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 history2 history2 method NEG NEG	Oil Age	hrs	Client Info		668	452	212
CONTAMINATION	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Well WC Method WC Method NEG NEG NEG NEG	Sample Status				ABNORMAL	NORMAL	NORMAL
WEAR METALS method limit/base current history1 history2	CONTAMINATION	N	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >15 8 3 0 Chromium ppm ASTM D5185m >4 <1	-uel		WC Method	>4.0	<1.0	<1.0	<1.0
Pron	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Sickel	ron	ppm	ASTM D5185m	>15	8	3	0
Silver ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >5 0 0 <1 Numinum ppm ASTM D5185m >6 2 4 2 Lead ppm ASTM D5185m >9 2 1 2 Copper ppm ASTM D5185m >4 7 5 4 Zandium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 <1 Boron ppm ASTM D5185m 0 <1 <1 Boron ppm ASTM D5185m 0 <1 <1 <1 Boron ppm ASTM D5185m 2 <1 <1 <1 <1 <1 <1	Chromium	ppm	ASTM D5185m	>4	<1	<1	0
Silver	Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	Titanium	ppm	ASTM D5185m		0	0	0
Lead ppm ASTM D5185m >9 2 1 2 Copper ppm ASTM D5185m >14 3 2 3 Fin ppm ASTM D5185m O 0 0 0 Vanadium ppm ASTM D5185m O 0 0 0 Cadmium ppm ASTM D5185m O 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m O 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m O 0 0 0 Adagnesium ppm ASTM D5185m 11 15 10 11 15 10 Calcium ppm ASTM D5185m 1708 1786 1864 20 272 266 Zinc ppm ASTM D51	Silver	ppm	ASTM D5185m	>5	0	0	<1
Copper ppm ASTM D5185m >14 3 2 3 Fin ppm ASTM D5185m 0 0 0 0 Aanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 2 <1	Aluminum	ppm	ASTM D5185m	>6	2	4	2
Fin	_ead	ppm	ASTM D5185m	>9	2	1	2
Anandium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1 <1 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 2 <1 2 Magnesium ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1708 1786 1864 Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Zinc ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm A	Copper	ppm	ASTM D5185m	>14	3	2	3
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	- Tin	ppm	ASTM D5185m	>4	7	5	4
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	/anadium	ppm	ASTM D5185m		0	0	0
Soron ppm ASTM D5185m 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	0
Parium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 2 <1 2 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 11 15 10 Calcium ppm ASTM D5185m 1708 1786 1864 Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/cm *ASTM D74	Boron	ppm	ASTM D5185m		0	<1	<1
Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 11 15 10 Calcium ppm ASTM D5185m 1708 1786 1864 Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/cm *ASTM D7	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 11 15 10 Calcium ppm ASTM D5185m 1708 1786 1864 Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Sodium ppm ASTM D5185m >0 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Goot % *ASTM D7844 0 0 0 Witration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/cm	Molybdenum	ppm	ASTM D5185m		2	<1	2
Calcium ppm ASTM D5185m 1708 1786 1864 Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Manganese	ppm	ASTM D5185m		<1	<1	<1
Phosphorus ppm ASTM D5185m 262 272 266 Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Sodium ppm ASTM D5185m >20 2 0 1 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 0 0 0 Vitration Abs/cm "ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm "ASTM D7415 >30 17.7 17.3 16.4	Magnesium	ppm	ASTM D5185m		11	15	10
Zinc ppm ASTM D5185m 335 326 334 Sulfur ppm ASTM D5185m 2067 2069 1979 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 200 145 100 Sodium ppm ASTM D5185m 0 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Calcium	ppm	ASTM D5185m		1708	1786	1864
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 ▲ 200 145 100 Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Phosphorus	ppm	ASTM D5185m		262	272	266
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 ▲ 200 145 100 Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Zinc	ppm	ASTM D5185m		335	326	334
Silicon ppm ASTM D5185m >181 ▲ 200 145 100 Godium ppm ASTM D5185m 0 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Sulfur	ppm	ASTM D5185m		2067	2069	1979
Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 1 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 0 0 0 Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Gulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Silicon	ppm		>181	^ 200	145	100
INFRA-RED method limit/base current history1 history2 Boot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Sodium	ppm	ASTM D5185m		0	0	0
Goot % % *ASTM D7844 0 0 0 Nitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Potassium	ppm	ASTM D5185m	>20	2	0	1
Vitration Abs/cm *ASTM D7624 >20 6.8 5.7 5.6 Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 17.7 17.3 16.4	Soot %	%	*ASTM D7844		0	0	0
······································	Nitration	Abs/cm	*ASTM D7624	>20	6.8	5.7	5.6
FLUID DEGRADATION method limit/base current history1 history2	Sulfation	Abs/.1mm	*ASTM D7415	>30	17.7	17.3	16.4
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2

Oxidation

Abs/.1mm *ASTM D7414 > 25

Acid Number (AN) mg KOH/g ASTM D8045 1.2

Base Number (BN) mg KOH/g ASTM D2896 4.5

13.2

1.64

4.64

9.8

0.71

4.52

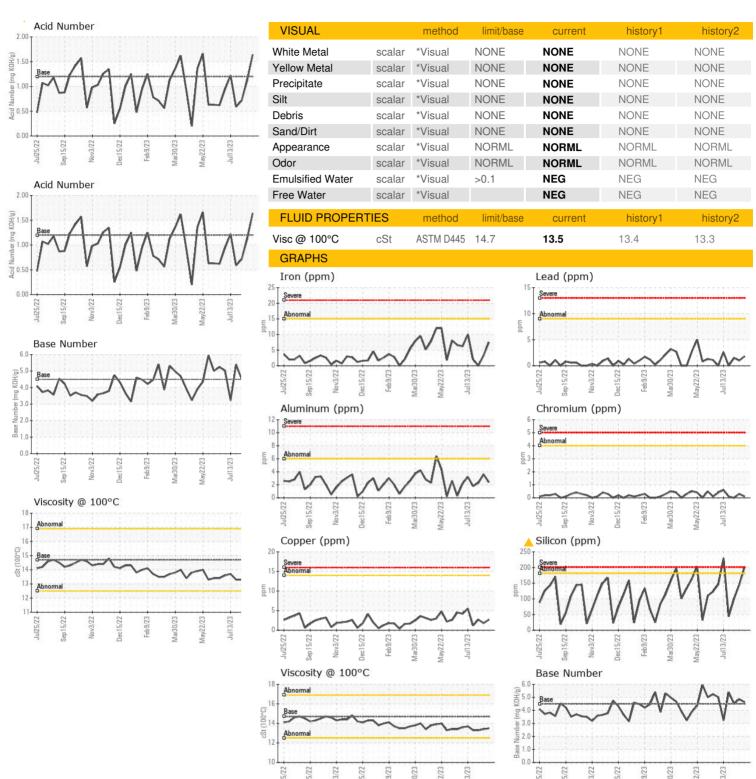
11.4

1.12

4.85



OIL ANALYSIS REPORT







Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package

: WC0819476 : 05934958 : 10620229 : MOB 2

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : 25 Aug 2023 Received

: 28 Aug 2023 Diagnosed : Don Baldridge Diagnostician

EDL NA Recips-Coopersville

Coopersville Powerstation, 15362 68th Avenue Coopersville, MI

US 49404

Contact: Daniel Young 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) T: F: