

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id Grand Blanc CAT 4 GBLM04BE

Component **Biogas Engine**

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: 400hr Oil Sample)

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

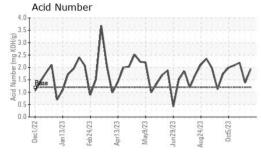
Fluid Condition

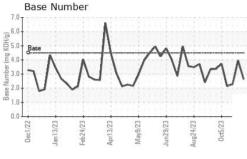
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

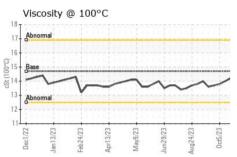
Sample Number Client Info WC0870125 WC0870038 WC082497.	CAS LIMINE OIL (-	GAL)	c2022 Jan20	23 Feb2023 Apr2023	May2023 Jun2023 Aug2023	0ct2023	
Sample Date Client Info 14 Nov 2023 26 Oct 2025 26 Oct 2025	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 65566 65347 65091 Oil Age hrs Client Info 448 0 0 Oil Changed Client Info Not Changd N/A N/A Sample Status Normal NoRMAL NORMAL NORMAL CONTAMINATION method Immit/base current history1 history1 Fuel WC Method >4.0 <1.0	Sample Number		Client Info		WC0870125	WC0870038	WC0824975
Oil Age hrs Client Info 448 0 0 Oil Changed Client Info Not Changd N/A N/A N/A Sample Status Client Info NoRMAL NORMAL NORMAL ABNORMA CONTAMINATION method limit/base current history1 history1 Fuel WC Method 4-0 <1.0 <1.0 <1.0 <1.0 Water WC Method 9-1 NEG NEG NEG NEG WEAR METALS method limil/base current history1 history1 Iron ppm ASTM D5185m >15 3 2 5 Chromium ppm ASTM D5185m >4 <1 0 0 Nickel ppm ASTM D5185m >2 0 0 <1 1 Silver ppm ASTM D5185m >5 0 0 0 <1 2 Lead ppm ASTM D5185m >6 2<	Sample Date		Client Info		14 Nov 2023	06 Nov 2023	26 Oct 2023
Cilient Info Not Change	Machine Age	hrs	Client Info		65566	65347	65091
NORMAL NORMAL ABNORMA	Oil Age	hrs	Client Info		448	0	0
CONTAMINATION	Oil Changed		Client Info		Not Changd	N/A	N/A
Fuel WC Method >4.0	Sample Status				NORMAL	NORMAL	ABNORMAL
Water Glycol WC Method WC Method >0.1 NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current current history1 history1 history1 Iron ppm ASTM D5185m >15 3 2 5 Chromium ppm ASTM D5185m >4 <1	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.1	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 0 0 Nickel ppm ASTM D5185m >2 0 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>15	3	2	5
Description	Chromium	ppm	ASTM D5185m	>4	<1	0	0
Titanium	Nickel	ppm			0	0	<1
Silver ppm ASTM D5185m >5 0 0 0 Aluminum ppm ASTM D5185m >6 2 1 2 Lead ppm ASTM D5185m >9 3 1 4 Copper ppm ASTM D5185m >9 3 1 4 Copper ppm ASTM D5185m >4 3 1 3 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 1 2 2 2 Magnesium ppm ASTM D5185m 11 9 0 <1 1 9 0 Calcium ppm ASTM D5185m 1895	Titanium		ASTM D5185m		0	0	<1
Aluminum ppm ASTM D5185m >6 2 1 2 Lead ppm ASTM D5185m >9 3 1 4 Copper ppm ASTM D5185m >14 1 <1	Silver		ASTM D5185m	>5		0	0
Lead ppm ASTM D5185m >9 3 1 4 Copper ppm ASTM D5185m >14 1 <1 2 Tin ppm ASTM D5185m >4 3 1 3 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 0 0 0 2 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 1 2 2 2 Manganese ppm ASTM D5185m 11 9 0 <1 1 9 0 Calcium ppm ASTM D5185m 1895 1786 1857 1857 Phosphorus ppm ASTM D5185m <t< td=""><td>Aluminum</td><td></td><td>ASTM D5185m</td><td></td><th></th><td></td><td>2</td></t<>	Aluminum		ASTM D5185m				2
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Phosphorus ppm ASTM D5185m 286 258 231 Zinc ppm ASTM D5185m 365 333 317 Sulfur ppm ASTM D5185m 3160 2644 2746 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 140 88 ▲ 191 Sodium ppm ASTM D5185m >0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxi	Magnesium	ppm	ASTM D5185m		11	9	0
Zinc ppm ASTM D5185m 365 333 317 Sulfur ppm ASTM D5185m 3160 2644 2746 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 140 88 ▲ 191 Sodium ppm ASTM D5185m 0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 <t< td=""><td>Calcium</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>1895</th><td>1786</td><td>1857</td></t<>	Calcium	ppm	ASTM D5185m		1895	1786	1857
Sulfur ppm ASTM D5185m 3160 2644 2746 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 140 88 ▲ 191 Sodium ppm ASTM D5185m >0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1	Phosphorus	ppm	ASTM D5185m		286	258	231
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 140 88 ▲ 191 Sodium ppm ASTM D5185m 0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1	Zinc	ppm	ASTM D5185m		365	333	317
Silicon ppm ASTM D5185m >181 140 88 ▲ 191 Sodium ppm ASTM D5185m 0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1	Sulfur	ppm	ASTM D5185m		3160	2644	2746
Sodium ppm ASTM D5185m 0 1 2 Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 2.19	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 2.19	Silicon	ppm	ASTM D5185m	>181	140	88	<u> </u>
Potassium ppm ASTM D5185m >20 2 0 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 2.19	Sodium	ppm	ASTM D5185m		0	1	2
Soot % % *ASTM D7844 0.1 0 0.1 Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 △ 2.19	Potassium	ppm	ASTM D5185m	>20	2	0	<1
Nitration Abs/cm *ASTM D7624 >20 5.7 5.5 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 2.19	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.4 20.0 24.4 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 ▲ 2.19	Soot %	%	*ASTM D7844		0.1	0	0.1
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 ▲ 2.19	Nitration	Abs/cm	*ASTM D7624	>20	5.7	5.5	5.9
Oxidation Abs/.1mm *ASTM D7414 >25 13.5 11.5 15.6 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 2.19	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.4	20.0	24.4
Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.94 1.38 ▲ 2.19	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	13.5	11.5	15.6
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.2		1.38	△ 2.19
	Base Number (BN)	mg KOH/g	ASTM D2896	4.5	2.63	3.96	<u>^</u> 2.29



OIL ANALYSIS REPORT



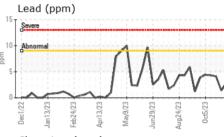


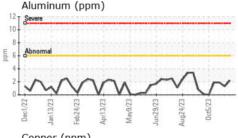


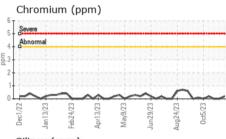
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

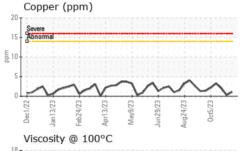
FLUID PROPER	TILO	memod			riistory i	HISTORYZ
Visc @ 100°C	cSt	ASTM D445	14.7	13.8	13.6	14.2

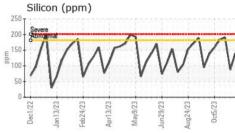
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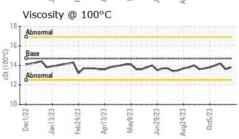


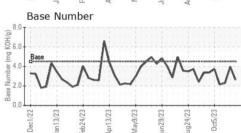
















Certificate L2367

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

: WC0870125 : 06012619 : 10751763 Test Package : MOB 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received : 20 Nov 2023 : 21 Nov 2023 Diagnosed Diagnostician : Sean Felton

EDL NA Recips-Grand Blanc Grand Blanc Powerstation, 2361 West Grand Blanc Road

Grand Blanc, MI US 48439

Contact: Tony Saint Marie tony.saintmarie@edlenergy.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)

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