

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Grand Blanc CAT 5 GBLM05BE

Component
Biogas Engine

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: 200hr Oil Sample)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

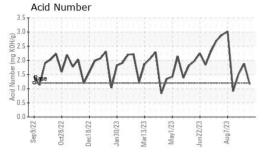
Fluid Condition

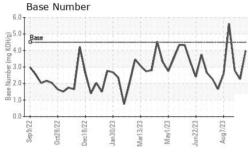
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

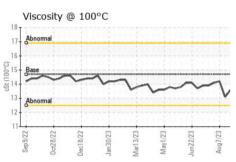
,		12022 Oct202		Mar2023 May2023 Jun2023 .	Aug2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0824969	WC0824965	WC0825025
Sample Date		Client Info		28 Sep 2023	18 Sep 2023	08 Sep 2023
Machine Age	hrs	Client Info		55372	55148	54917
Oil Age	hrs	Client Info		203	846	612
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	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	3	6	5
Chromium	ppm	ASTM D5185m	>4	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	<1	1	1
Lead	ppm	ASTM D5185m	>9	<1	4	1
Copper	ppm	ASTM D5185m	>14	<1	4	3
Tin	ppm	ASTM D5185m	>4	1	2	1
Vanadium	ppm	ASTM D5185m		0	- <1	0
Cadmium	ppm	ASTM D5185m		0	0	0
	PP		11 11 11			
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		11	2	<1
DOIOII	ppiii					
Barium	ppm	ASTM D5185m		0	0	0
		ASTM D5185m ASTM D5185m				
Barium	ppm	ASTM D5185m		0	0 3 <1	0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 3	0	0
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 3 <1	0 3 <1	0 1 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 3 <1 17	0 3 <1 8	0 1 <1 14
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 3 <1 17 1818	0 3 <1 8 2128	0 1 <1 14 1902
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 3 <1 17 1818 306	0 3 <1 8 2128 304	0 1 <1 14 1902 288
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 3 <1 17 1818 306 370	0 3 <1 8 2128 304 366	0 1 <1 14 1902 288 345
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >181	0 3 <1 17 1818 306 370 3036	0 3 <1 8 2128 304 366 3678	0 1 <1 14 1902 288 345 3497
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 3 <1 17 1818 306 370 3036	0 3 <1 8 2128 304 366 3678 history1	0 1 <1 14 1902 288 345 3497 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>181	0 3 <1 17 1818 306 370 3036 current	0 3 <1 8 2128 304 366 3678 history1	0 1 <1 14 1902 288 345 3497 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>181	0 3 <1 17 1818 306 370 3036 current 69 <1	0 3 <1 8 2128 304 366 3678 history1 147 6	0 1 <1 14 1902 288 345 3497 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>181	0 3 <1 17 1818 306 370 3036 current 69 <1 <1	0 3 <1 8 2128 304 366 3678 history1 147 6 0	0 1 <1 14 1902 288 345 3497 history2 112 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	>181 >20 limit/base	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1	0 1 <1 14 1902 288 345 3497 history2 112 6 0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>181 >20 limit/base	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1 0	0 1 <1 14 1902 288 345 3497 history2 112 6 0 history2 0.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>181 >20 limit/base >20	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current 0 5.4	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1 0 7.4	0 1 <1 14 1902 288 345 3497 history2 112 6 0 history2 0.1 6.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	>181 >20 limit/base >20 >30	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current 0 5.4 20.6	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1 0 7.4 27.9	0 1 <1 14 1902 288 345 3497 history2 112 6 0 history2 0.1 6.2 21.6 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415 Method *ASTM D7414	>181 >20 limit/base >20 >30 limit/base >25	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current 0 5.4 20.6 current 11.9	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1 0 7.4 27.9 history1 18.1	0 1 <1 14 1902 288 345 3497 history2 112 6 0 history2 0.1 6.2 21.6 history2 13.5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415 Method *ASTM D7414	>181 >20 limit/base >20 >30 limit/base >25	0 3 <1 17 1818 306 370 3036 current 69 <1 <1 current 0 5.4 20.6 current	0 3 <1 8 2128 304 366 3678 history1 147 6 0 history1 0 7.4 27.9 history1	0 1 <1 14 1902 288 345 3497 history2 112 6 0 history2 0.1 6.2 21.6 history2



OIL ANALYSIS REPORT



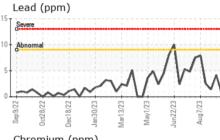


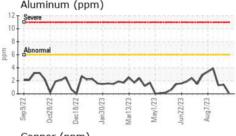


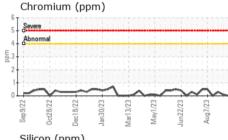
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance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

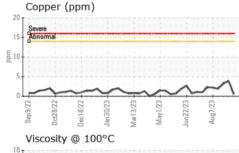
FLUID PROPER	HES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	13.8	13.9	13.6

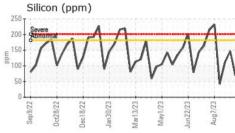
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Abn	omal						
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Sep 9/22	√ 27/8	V 221	V (33	Mar13/23	V~	√	//

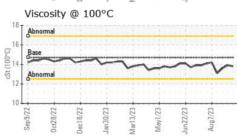


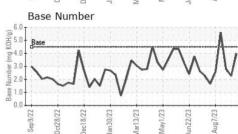
















Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 2

: WC0824969 : 05966508

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed : 10673059

: 02 Oct 2023 : 03 Oct 2023 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 T:

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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