

OIL ANALYSIS REPORT

Sample Rating Trend

Sample hading french

NORMAL



Grand Blanc CAT 4 GBLM04BE

Biogas Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: 600hr Oil Samp)

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

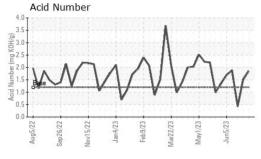
Fluid Condition

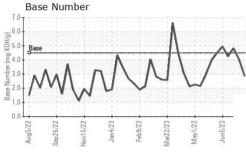
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

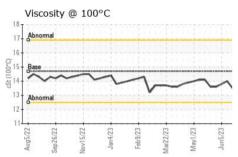
		g2022 Sep20	22 Nov2022 Jan2023	Feb2023 Mar2023 May2023		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0825022	WC0825001	WC0795405
Sample Date		Client Info		19 Jul 2023	10 Jul 2023	29 Jun 2023
Machine Age	hrs	Client Info		62855	62667	62402
Oil Age	hrs	Client Info		628	457	200
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	V	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	5	3	3
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	2	2
Lead	ppm	ASTM D5185m	>9	5	4	2
Copper	ppm	ASTM D5185m	>14	2	2	1
Tin	ppm	ASTM D5185m	>4	3	2	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	mag		limit/base		history1	history2
Boron	ppm	ASTM D5185m	limit/base	2	2	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2	2	2
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3	2 0 2	2 0 2
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3 <1	2 0 2 <1	2 0 2 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3 <1 13	2 0 2 <1 11	2 0 2 <1 8
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3 <1 13 1949	2 0 2 <1 11 1825	2 0 2 <1 8 1695
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3 <1 13 1949 285	2 0 2 <1 11 1825 265	2 0 2 <1 8 1695 253
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 2 3 <1 13 1949	2 0 2 <1 11 1825	2 0 2 <1 8 1695
Boron 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 ASTM D5185m	limit/base	2 2 3 <1 13 1949 285 364	2 0 2 <1 11 1825 265 332	2 0 2 <1 8 1695 253 313
Boron 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 ASTM D5185m		2 2 3 <1 13 1949 285 364 3269	2 0 2 <1 11 1825 265 332 2947	2 0 2 <1 8 1695 253 313 2592
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	2 2 3 <1 13 1949 285 364 3269	2 0 2 <1 11 1825 265 332 2947 history1	2 0 2 <1 8 1695 253 313 2592 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	2 2 3 <1 13 1949 285 364 3269 current	2 0 2 <1 11 1825 265 332 2947 history1	2 0 2 <1 8 1695 253 313 2592 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	2 2 3 <1 13 1949 285 364 3269 current 154	2 0 2 <1 11 1825 265 332 2947 history1 112	2 0 2 <1 8 1695 253 313 2592 history2 74 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20	2 2 3 <1 13 1949 285 364 3269 current 154 0	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2	2 0 2 <1 8 1695 253 313 2592 history2 74 0
Boron 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	limit/base >181 >20 limit/base	2 2 3 <1 13 1949 285 364 3269 current 154 0 1 current	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2	2 0 2 <1 8 1695 253 313 2592 history2 74 0 1
Boron 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 ASTM D5185m	limit/base >181 >20 limit/base	2 2 3 <1 13 1949 285 364 3269 current 154 0 1 current 0.1	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2 history1	2 0 2 <1 8 1695 253 313 2592 history2 74 0 1 history2
Boron 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	limit/base >181 >20 limit/base >20	2 2 3 <1 13 1949 285 364 3269 current 154 0 1 current 0.1 6.1	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2 history1 0.1 6.0	2 0 2 <1 8 1695 253 313 2592 history2 74 0 1 history2 0.1 5.3
Boron 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 D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >181 >20 limit/base >20 >30	2 2 3 <1 13 1949 285 364 3269 current 154 0 1 current 0.1 6.1 21.5	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2 history1 0.1 6.0 20.8	2 0 2 <1 8 1695 253 313 2592 history2 74 0 1 history2 0.1 5.3 18.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	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 ASTM D5185m METHOD	limit/base >181 >20 limit/base >20 >30 limit/base	2 2 3 <1 13 1949 285 364 3269 current 154 0 1 current 0.1 6.1 21.5 current	2 0 2 <1 11 1825 265 332 2947 history1 112 0 2 history1 0.1 6.0 20.8 history1	2 0 2 <1 8 1695 253 313 2592 history2 74 0 1 history2 0.1 5.3 18.4 history2



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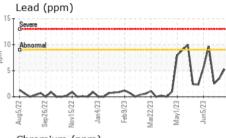


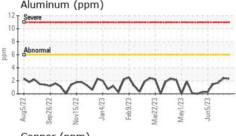


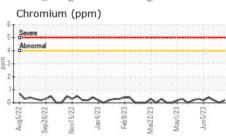
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

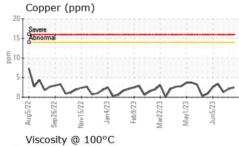
FLUID FROFER	THES	memou			HISTORY	HISTORYZ
Visc @ 100°C	cSt	ASTM D445	14.7	13.7	13.7	13.5

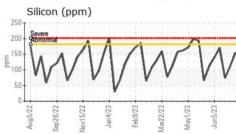
Seve	re						
Abn	ormal	111					
١.							
V	m	~	1	1	~	~	1
Aug5/22	Sep26/22	Nov15/22	1	Feb9/23	Mar22/23	May1/23	1

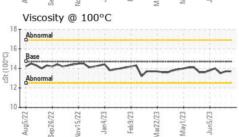


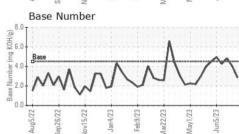
















Certificate L2367

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

: WC0825022 : 05904502

: 10565858

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 21 Jul 2023 Diagnosed : 25 Jul 2023 Diagnostician : Angela Borella

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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