

OIL ANALYSIS REPORT

Sample Rating Trend





Brent Run CAT 3 BRRM03BE

Component
Biogas Engine

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

DIAGNOSIS

Recommendation

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

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

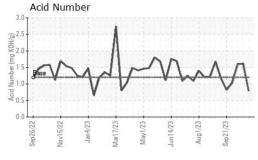
Fluid Condition

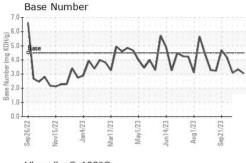
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

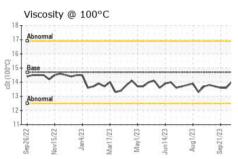
				May2023 Jun2023 Aug2023		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0776756	WC0776753	WC0776776
Sample Date		Client Info		27 Oct 2023	18 Oct 2023	12 Oct 2023
Machine Age	hrs	Client Info		47336	47133	46950
Oil Age	hrs	Client Info		203	776	593
Oil Changed		Client Info		Not Changd	Changed	Not Changd
Sample Status				NORMAL	SEVERE	SEVERE
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	2	4	3
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	2	2	2
Lead	ppm	ASTM D5185m	>9	0	<1	<1
Copper	ppm	ASTM D5185m	>6	<1	2	<1
Tin	ppm	ASTM D5185m	>4	2	5	5
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVEO		41.0	1::-			la la la ma
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	imit/base	6	history1 3	nistory2 1
	ppm		iimii/base			
Boron		ASTM D5185m	iimivbase	6	3	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	iimii/base	6 <1	3	1
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	iimivoase	6 <1 3	3 0 2	1 3 <1
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iimivoase	6 <1 3 0	3 0 2	1 3 <1 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	ilmi/base	6 <1 3 0 22	3 0 2 0 16	1 3 <1 0 13
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	iimi/base	6 <1 3 0 22 1815	3 0 2 0 16 2037	1 3 <1 0 13 1881
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	II/II/Dase	6 <1 3 0 22 1815 295	3 0 2 0 16 2037 321	1 3 <1 0 13 1881 302
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	6 <1 3 0 22 1815 295 361	3 0 2 0 16 2037 321 382	1 3 <1 0 13 1881 302 388
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m		6 <1 3 0 22 1815 295 361 2965	3 0 2 0 16 2037 321 382 3720	1 3 <1 0 13 1881 302 388 3085
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	6 <1 3 0 22 1815 295 361 2965 current	3 0 2 0 16 2037 321 382 3720 history1	1 3 <1 0 13 1881 302 388 3085 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	6 <1 3 0 22 1815 295 361 2965 current	3 0 2 0 16 2037 321 382 3720 history1	1 3 <1 0 13 1881 302 388 3085 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	6 <1 3 0 22 1815 295 361 2965 current 116 2	3 0 2 0 16 2037 321 382 3720 history1 259 0	1 3 <1 0 13 1881 302 388 3085 history2 215 2
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	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 2	3 0 2 0 16 2037 321 382 3720 history1 259 0 2	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20 limit/base	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 current	3 0 2 0 16 2037 321 382 3720 history1 1	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3 history2
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	limit/base >181 >20 limit/base	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 current 0	3 0 2 0 16 2037 321 382 3720 history1	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3 history2 0.1
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	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 current 0 5.8	3 0 2 0 16 2037 321 382 3720 history1 259 0 2 history1 0.1 6.7	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3 history2 0.1 6.3
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 D7844 *ASTM D7624 *ASTM D76145	limit/base >181 >20 limit/base >20 >30	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 current 0 5.8 19.2	3 0 2 0 16 2037 321 382 3720 history1 ◆ 259 0 2 history1 0.1 6.7 24.2	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3 history2 0.1 6.3 23.0
Boron 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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D7415 Method	limit/base >181 >20 limit/base >20 >30 limit/base	6 <1 3 0 22 1815 295 361 2965 current 116 2 2 current 0 5.8 19.2 current	3 0 2 0 16 2037 321 382 3720 history1	1 3 <1 0 13 1881 302 388 3085 history2 215 2 3 history2 0.1 6.3 23.0 history2



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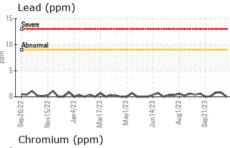


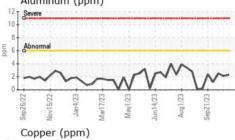


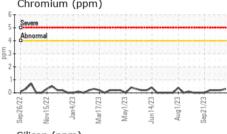
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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

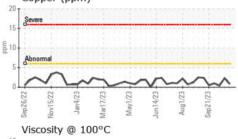
FLUID PROPER	HES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	13.6	14.1	14.0

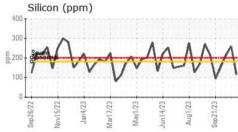
Seve	re						
Abn	ormal						
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/	Y	~	V /	\sim	V \	_ `	
6/22	Nov15/22	4/23	7/23	May1/23	4/23	1/23	1/23
	2	Jan4/	Mar17/2	May	Jun14/2	Aug1,	Sep21/23
Sep26/22							

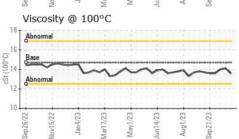


















Certificate L2367

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

: WC0776756 : 05995869 : 10724229

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

: 01 Nov 2023 : 03 Nov 2023 : Don Baldridge Diagnostician

EDL NA Recips-Brent Run Brent Run Power Station, 8383 Vienna Road

Montrose, MI US 48457-9141

Contact: Rob Stewart

To discuss this sample report, contact Customer Service at 1-800-237-1369. Rob.Stewart@energydevelopments.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)

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