

OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Pinconning CAT 1 PINM01BE

Biogas Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Waar

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

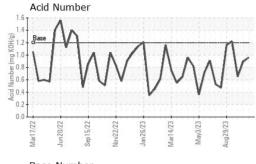
Fluid Condition

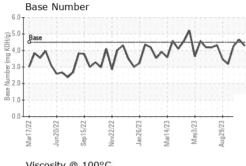
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

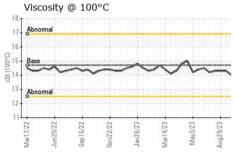
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SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0840765	WC0531421	WC0531425
Sample Date		Client Info		12 Oct 2023	02 Oct 2023	25 Sep 2023
Machine Age	hrs	Client Info		123389	123163	122999
Oil Age	hrs	Client Info		647	421	257
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	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	<1	0	<1
Chromium	ppm	ASTM D5185m		0	0	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	_	0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m		<1	<1	3
Lead	ppm	ASTM D5185m	>9	0	0	<1
Copper	ppm	ASTM D5185m		<1	0	0
Tin		ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m	>4	0	<1	0
Cadmium		ASTM D5185m		0	0	0
	ppm	ASTIVI DOTOSIII		<u> </u>		
A D D I TIL / E O						
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	0	0	0
	ppm ppm		limit/base			0
Boron		ASTM D5185m	limit/base	0	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	0 0	0	0
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 <1	0 0 0	0 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 <1 0	0 0 0 <1	0 0 <1 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 0 <1 0	0 0 0 <1 10	0 0 <1 0 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	0 0 <1 0 0 1609	0 0 0 <1 10 1510	0 0 <1 0 8 1595
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	limit/base	0 0 <1 0 0 1609 226	0 0 0 <1 10 1510 215	0 0 <1 0 8 1595 268
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	0 0 <1 0 0 1609 226 281	0 0 0 <1 10 1510 215 335	0 0 <1 0 8 1595 268 322
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 ASTM D5185m	limit/base	0 0 <1 0 0 1609 226 281 1901	0 0 0 <1 10 1510 215 335 2158	0 0 <1 0 8 1595 268 322 2255
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base	0 0 <1 0 0 1609 226 281 1901	0 0 0 <1 10 1510 215 335 2158 history1	0 0 <1 0 8 1595 268 322 2255 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	0 0 -<1 0 0 1609 226 281 1901 current	0 0 0 <1 10 1510 215 335 2158 history1	0 0 <1 0 8 1595 268 322 2255 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181	0 0 -<1 0 0 1609 226 281 1901 current 96	0 0 0 <1 10 1510 215 335 2158 history1 50	0 0 <1 0 8 1595 268 322 2255 history2 56 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >181 >20	0 0 <1 0 0 1609 226 281 1901 current 96 2	0 0 0 <1 10 1510 215 335 2158 history1 50 0	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 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	0 0 -<1 0 0 1609 226 281 1901 current 96 2 0	0 0 0 <1 10 1510 215 335 2158 history1 50 0 2	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 0
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	0 0 -<1 0 0 1609 226 281 1901 current 96 2 0	0 0 0 110 1510 215 335 2158 history1 50 0 2 history1 0	0 0
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 ASTM D5185m	limit/base >181 >20 limit/base >20	0 0 -<1 0 0 1609 226 281 1901 current 96 2 0 current 0 5.3	0 0 0 1510 215 335 2158 history1 50 0 2 history1 0 5.1	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 0 history2
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 D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base >181 >20 limit/base >20 >30	0 0 -<1 0 0 1609 226 281 1901 current 96 2 0 current 0 5.3 18.2 current	0 0 0 1510 215 335 2158 history1 50 0 2 history1 0 5.1 17.4	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 0 history2 0 4.8 16.4 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	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 D76185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	limit/base >181 >20 limit/base >20 >30 limit/base >25	0 0 0 <1 0 0 1609 226 281 1901 current 96 2 0 current 0 5.3 18.2 current 11.9	0 0 0 1510 215 335 2158 history1 50 0 2 history1 0 5.1 17.4 history1 10.8	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 0 history2 0 4.8 16.4 history2 9.4
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 D76185m method *ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	limit/base >181 >20 limit/base >20 >30 limit/base	0 0 -<1 0 0 1609 226 281 1901 current 96 2 0 current 0 5.3 18.2 current	0 0 0 1510 215 335 2158 history1 50 0 2 history1 0 5.1 17.4 history1	0 0 <1 0 8 1595 268 322 2255 history2 56 <1 0 history2 0 4.8 16.4 history2



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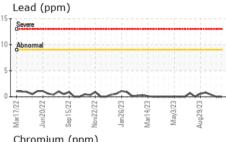


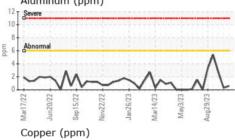
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

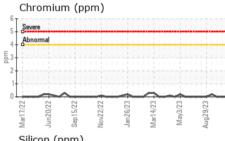
FLUID FROFER	THES	memou			HISTORY	HISTORYZ
Visc @ 100°C	cSt	ASTM D445	14.7	14.3	14.1	14.0

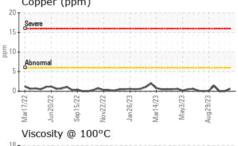
Iron 25 - a a a	n (ppi	m)						
Seve	re							11
Abno	ormal			11111				1 1
10					A			
5-	_ ^				Λ			
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17/22	20/22	Sep15/22	Vov22/22	Jan 26/23	14/23	May3/23	Aug29/23	
Mar17/	Jun20/	Sep	Nov	Pal	Mar14/2	N N	Aug	
	minu	n (pp	m)					
12 Seve	re				11111			_

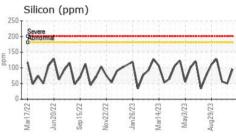
GRAPHS

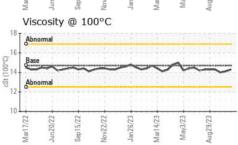


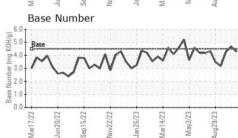
















Certificate L2367

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

: 05979896

: WC0840765 : 10697191

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 16 Oct 2023 Diagnosed : 18 Oct 2023

: Jonathan Hester Diagnostician

EDL NA Recips-Pinconning

Pinconning Powerstation, 2403 E. Whitefeather Road Pinconning, MI US 48650

> Contact: DOUG HINE doug.hine@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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