

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



HANM02BE (S/N 3RC00182) Component

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (95 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

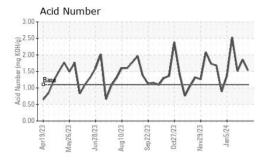
Fluid Condition

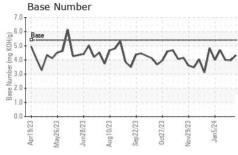
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

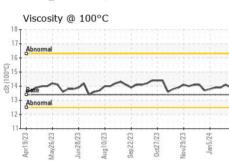
		12023 Way20	-			
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0898142	WC0851244	WC0851251
Sample Date		Client Info		29 Jan 2024	25 Jan 2024	17 Jan 2024
Machine Age	hrs	Client Info		71012	70916	70722
Oil Age	hrs	Client Info		982	886	695
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	2	<1	1
Chromium	ppm	ASTM D5185m	>4	<1	0	0
Nickel	ppm		>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m		2	3	2
Lead	ppm	ASTM D5185m	>9	- <1	1	0
Copper	ppm	ASTM D5185m		<1	0	<1
Tin	ppm	ASTM D5185m		4	4	4
Vanadium	ppm	ASTM D5185m	7	0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	le le	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		16	6	5
Barium	ppm	ASTM D5185m		<1	0	<1
Molybdenum		ASTM D5185m		5	3	4
	ppm					
Manganoco	nnm	ACTM DE18Em		-4	-1	-1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		28	26	27
Magnesium Calcium	ppm ppm	ASTM D5185m ASTM D5185m		28 1884	26 2027	27 1931
Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		28 1884 309	26 2027 328	27 1931 327
Magnesium Calcium Phosphorus Zinc	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		28 1884 309 416	26 2027 328 412	27 1931 327 408
Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		28 1884 309 416 2329	26 2027 328 412 2204	27 1931 327 408 2266
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base	28 1884 309 416 2329 current	26 2027 328 412 2204 history1	27 1931 327 408 2266 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base	28 1884 309 416 2329 current	26 2027 328 412 2204 history1	27 1931 327 408 2266 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	>181	28 1884 309 416 2329 current 119	26 2027 328 412 2204 history1 135 <1	27 1931 327 408 2266 history2 128
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	>181	28 1884 309 416 2329 current 119 0	26 2027 328 412 2204 history1 135 <1	27 1931 327 408 2266 history2 128 0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm	ASTM D5185m	>181	28 1884 309 416 2329 current 119 0 2	26 2027 328 412 2204 history1 135 <1 2	27 1931 327 408 2266 history2 128 0 0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method *ASTM D7844	>181 >20 limit/base	28 1884 309 416 2329 current 119 0 2 current	26 2027 328 412 2204 history1 135 <1 2 history1 0.1	27 1931 327 408 2266 history2 128 0 0 history2
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624	>181 >20 limit/base >20	28 1884 309 416 2329 current 119 0 2 current 0.1 7.3	26 2027 328 412 2204 history1 135 <1 2 history1 0.1 7.5	27 1931 327 408 2266 history2 128 0 0 history2 0.1 7.3
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	>181 >20 limit/base >20 >30	28 1884 309 416 2329 current 119 0 2 current	26 2027 328 412 2204 history1 135 <1 2 history1 0.1	27 1931 327 408 2266 history2 128 0 0 history2 0.1 7.3 21.0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624	>181 >20 limit/base >20	28 1884 309 416 2329 current 119 0 2 current 0.1 7.3	26 2027 328 412 2204 history1 135 <1 2 history1 0.1 7.5	27 1931 327 408 2266 history2 128 0 0 history2 0.1 7.3 21.0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	>181 >20 limit/base >20 >30	28 1884 309 416 2329	26 2027 328 412 2204 history1 135 <1 2 history1 0.1 7.5 21.5	27 1931 327 408 2266 history2 128 0 0 history2 0.1 7.3 21.0
Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145 Method *ASTM D7414	>181 >20 limit/base >20 >20 >30 limit/base	28 1884 309 416 2329	26 2027 328 412 2204 history1 135 <1 2 history1 0.1 7.5 21.5 history1	27 1931 327 408 2266 history2 128 0 0 history2 0.1 7.3 21.0 history2



OIL ANALYSIS REPORT





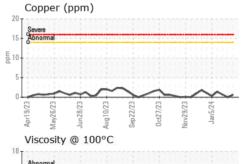


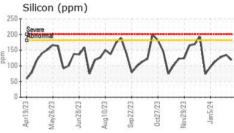
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

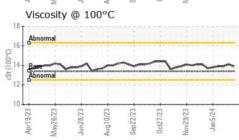
FLUID PROPER	THES	method	ilmivbase		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	13.4	13.9	14.1	13.9

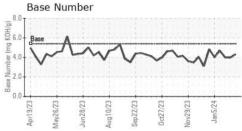
Apr19/23

Iron (ppr	n)				Lea 15 T T T T T	ad (ppm)	
Severe					Sev	ere	
Abnormal						normal	
					E E		
\sim	~~	~ .		A	5+1	- A	
~	2 2		<u></u>	\\	0		-
Apr19/23 May26/23	Jun28/23 Aug10/23	Sep22/23	Uctz 1/23 Nov29/23	Jan5/24	Apr19/23	May26/23 Jun28/23	
Aluminur	, ,					romium (p	р
Severe			1222217	111111111	Sev	ere	
					4 Abr	ormal	
Abnormal					E 3		













Laboratory Sample No. Lab Number : 06076018 Unique Number : 10858109

: WC0898142

Tested

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 31 Jan 2024

: 01 Feb 2024 : 01 Feb 2024 - Sean Felton Diagnosed

EDL NA Recips-Hancock County

HANCOCK COUNTY POWER STATION, 3574 TOWNSHIP ROAD 142 FINDLAY, OH

US 45840 Contact: TIM CUSICK tim.cusick@edlenergy.com

Test Package : MOB 2 Certificate L2367 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)

Report Id: ENEFIN [WUSCAR] 06076018 (Generated: 02/08/2024 19:12:06) Rev: 1

Submitted By: TIM CUSICK

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