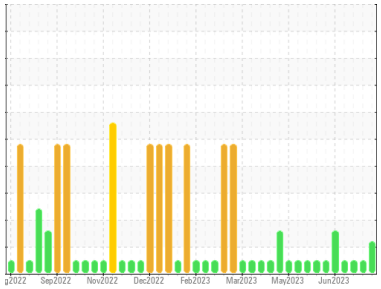
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
HANM04BE (S/N 4EK00413)
Component
Biogas Engine
Fluid
CHEVRON HDAX LFG SAE 40 (--- GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN level is low. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0802703**	WC0802701	WC0802678
Sample Date		Client Info		**13 Jul 2023**	28 Jun 2023	23 Jun 2023
Machine Age	hrs	Client Info		**67826**	67468	67350
Oil Age	hrs	Client Info		**716**	358	240
Oil Changed		Client Info		**Not Changd**	N/A	Not Changd
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		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	**4**	5	4
Chromium	ppm	ASTM D5185m	>4	**<1**	<1	0
Nickel	ppm	ASTM D5185m	>2	**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**2**	<1	0
Lead	ppm	ASTM D5185m	>9	**1**	<1	<1
Copper	ppm	ASTM D5185m	>14	**7**	6	7
Tin	ppm	ASTM D5185m	>4	**5**	4	3
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**<1**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**2**	2	2
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**11**	10	8
Calcium	ppm	ASTM D5185m		**2092**	2038	1834
Phosphorus	ppm	ASTM D5185m	270	**314**	301	277
Zinc	ppm	ASTM D5185m	310	**390**	378	339
Sulfur	ppm	ASTM D5185m		**2803**	2766	2217

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**135**	111	95
Sodium	ppm	ASTM D5185m		**2**	3	0
Potassium	ppm	ASTM D5185m	>20	**<1**	<1	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.9**	6.9	6.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.0**	20.1	19.3

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.8**	15.7	15.0
Acid Number (AN)	mg KOH/g	ASTM D8045	1.8	**1.73**	1.32	1.04
Base Number (BN)	mg KOH/g	ASTM D2896	6.0	▲ **1.80**	4.25	4.45

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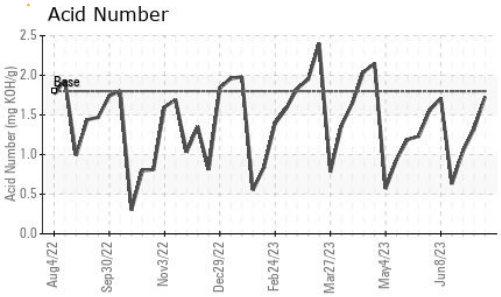
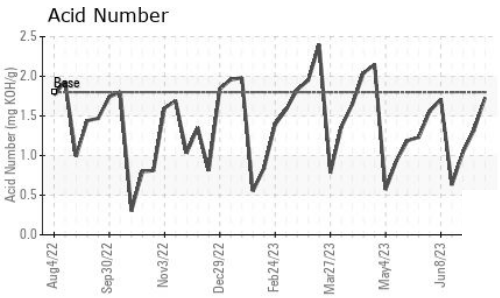
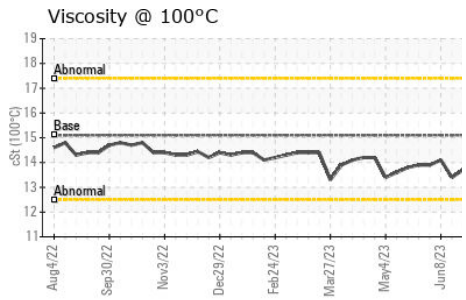


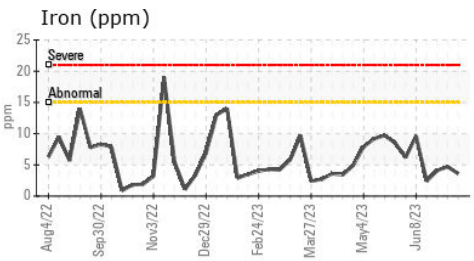


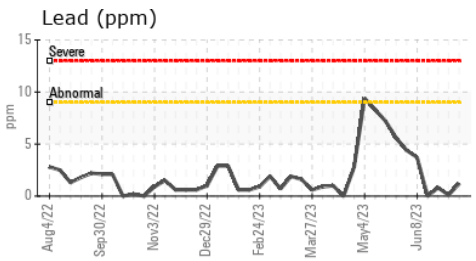


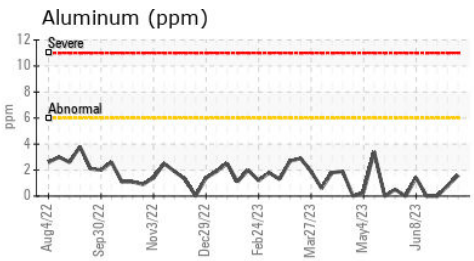
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

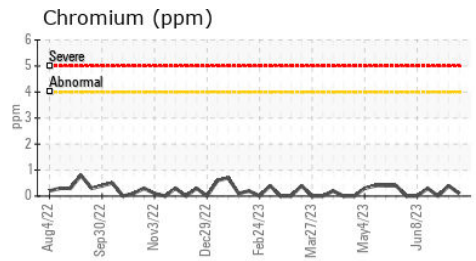
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	**14.3**	13.8	13.7

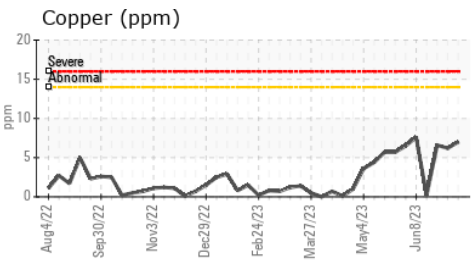
GRAPHS

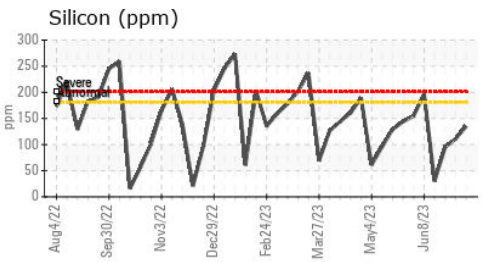


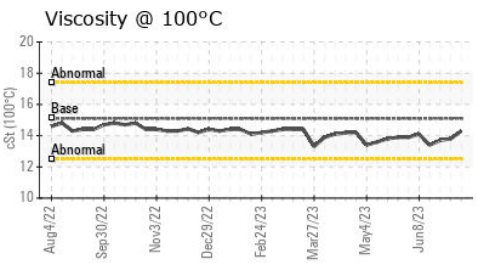


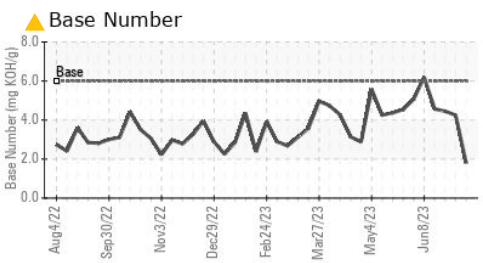












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0802703
Lab Number : 05900142
Unique Number : 10561498
Test Package : MOB 2

Received : 17 Jul 2023
Diagnosed : 19 Jul 2023
Diagnostician : Don Baldridge

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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Report Id: ENEFIN [WUSCAR] 05900142 (Generated: 07/19/2023 11:29:19) Rev: 1

Submitted By: TIM CUSICK