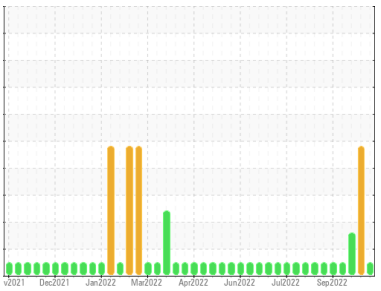
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
Surplus
Machine Id
CARM19BE (S/N GZJ00331)
Component
Biogas Engine
Fluid
MAHLER HA 40 (150 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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0668951**	WC0668972	WC0502610
Sample Date		Client Info		**20 Oct 2022**	13 Oct 2022	06 Oct 2022
Machine Age	hrs	Client Info		**83192**	83064	82905
Oil Age	hrs	Client Info		**102**	1082	923
Oil Changed		Client Info		**N/A**	N/A	Not Changd
Sample Status				**NORMAL**	SEVERE	ABNORMAL

CONTAMINATION		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	**4**	9	8
Chromium	ppm	ASTM D5185m	>4	**<1**	<1	<1
Nickel	ppm	ASTM D5185m		**0**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**2**	4	4
Lead	ppm	ASTM D5185m	>9	**3**	5	2
Copper	ppm	ASTM D5185m	>6	**1**	2	2
Tin	ppm	ASTM D5185m	>4	**6**	17	13
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	97	**2**	2	3
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**2**	2	3
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**15**	7	10
Calcium	ppm	ASTM D5185m	2100	**1687**	1750	1671
Phosphorus	ppm	ASTM D5185m	330	**288**	288	271
Zinc	ppm	ASTM D5185m	390	**354**	371	353
Sulfur	ppm	ASTM D5185m	4000	**3288**	3337	2997

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**73**	⬢ 221	▲ 188
Sodium	ppm	ASTM D5185m		**0**	0	<1
Potassium	ppm	ASTM D5185m	>20	**0**	2	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**4.7**	5.8	5.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**18.1**	21.7	20.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**9.6**	13.9	12.4
Acid Number (AN)	mg KOH/g	ASTM D8045	0.62	**0.61**	1.418	1.27
Base Number (BN)	mg KOH/g	ASTM D2896	7.9	**4.01**	3.14	3.36

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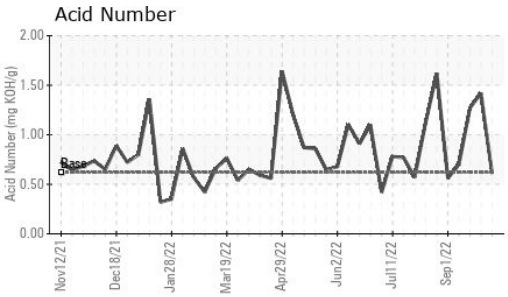
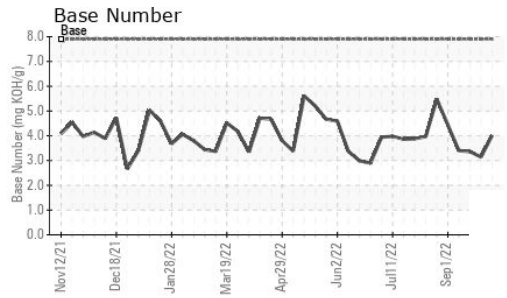
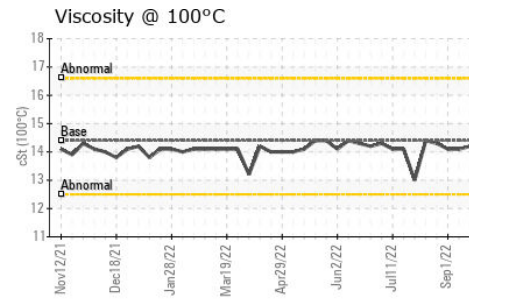


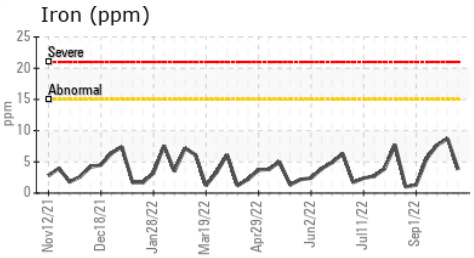


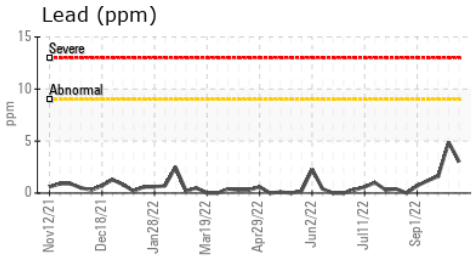


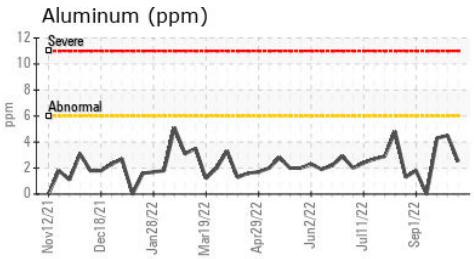
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

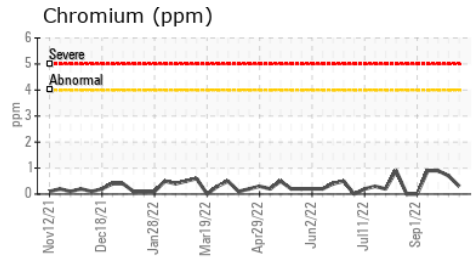
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**14.2**	14.4	14.2

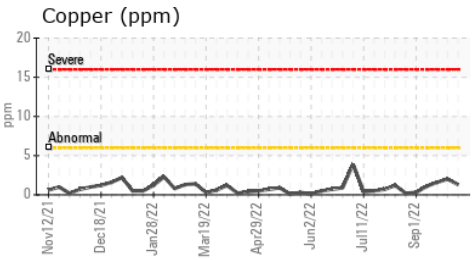
GRAPHS

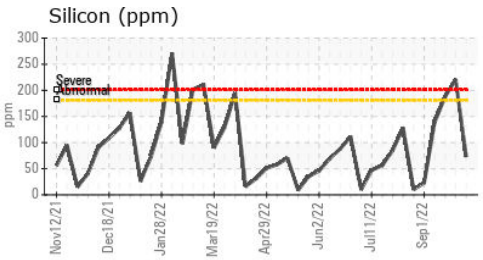


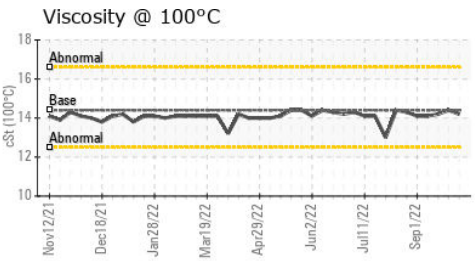


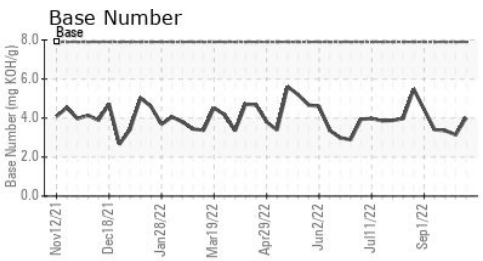












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0668951
Lab Number : 05675794
Unique Number : 10190365
Test Package : MOB 2

Received : 25 Oct 2022
Diagnosed : 27 Oct 2022
Diagnostician : Angela Borella

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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