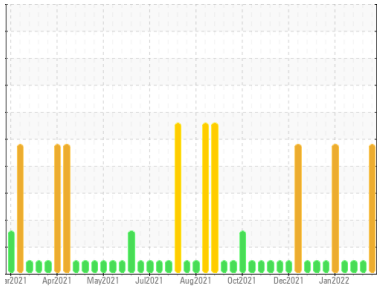
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
ZOKM01BE (S/N GZJ00541)
Component
Biogas Engine
Fluid
SHELL SHELL MYSELLA S3 N 40 (160 GAL)

DIAGNOSIS

Recommendation

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. (Customer Sample Comment: S5 mysella)

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal.

Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0623293**	WC0623290	WC0623297
Sample Date		Client Info		**08 Feb 2022**	31 Jan 2022	25 Jan 2022
Machine Age	hrs	Client Info		**69343**	69153	69015
Oil Age	hrs	Client Info		**546**	356	218
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	NORMAL	NORMAL

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	**10**	4	4
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**	<1	<1
Aluminum	ppm	ASTM D5185m	>6	**3**	2	3
Lead	ppm	ASTM D5185m	>9	**1**	<1	<1
Copper	ppm	ASTM D5185m	>6	**2**	2	1
Tin	ppm	ASTM D5185m	>4	**5**	3	3
Antimony	ppm	ASTM D5185m		**15**	10	8
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		**3**	3	5
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**5**	4	4
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**38**	32	33
Calcium	ppm	ASTM D5185m		**1568**	1364	1429
Phosphorus	ppm	ASTM D5185m		**358**	310	334
Zinc	ppm	ASTM D5185m		**424**	371	401
Sulfur	ppm	ASTM D5185m		**3127**	2502	3157

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**210**	137	128
Sodium	ppm	ASTM D5185m		**<1**	0	0
Potassium	ppm	ASTM D5185m	>20	**0**	<1	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0
Nitration	Abs/cm	*ASTM D7624	>20	**5.4**	4.9	4.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.2**	20.6	19.7

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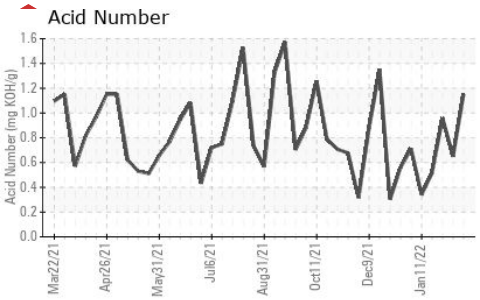
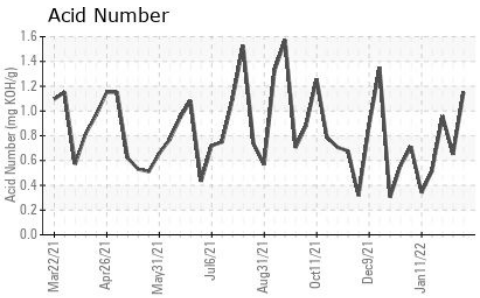
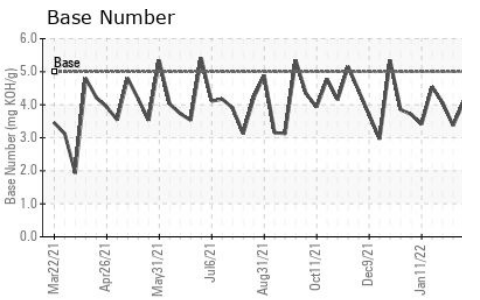
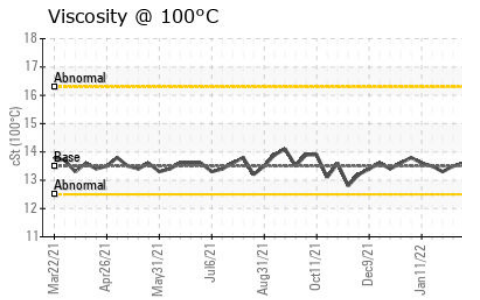






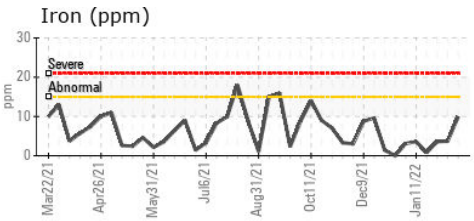


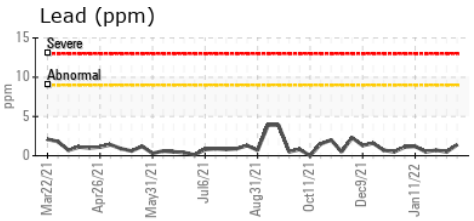
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**14.6**	12.7	11.9
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.15**	0.65	0.96
Base Number (BN)	mg KOH/g	ASTM D2896	5	**4.08**	3.37	4.06

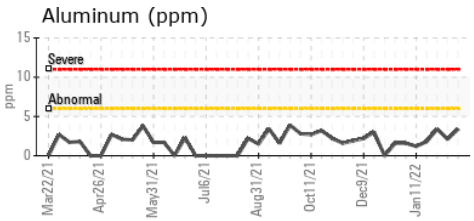
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

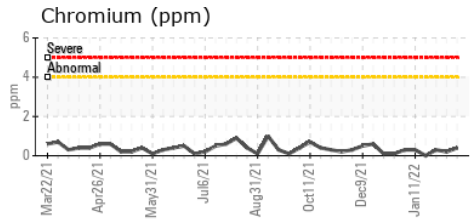
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.5	**13.6**	13.5	13.3

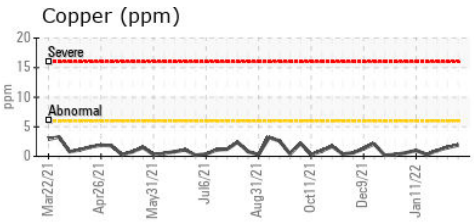
GRAPHS

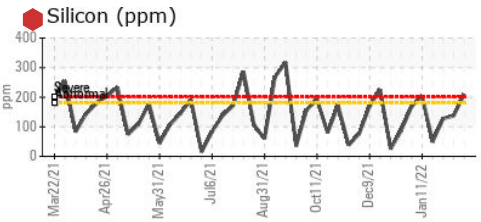


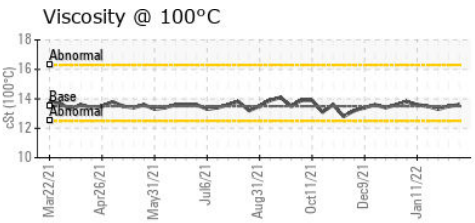


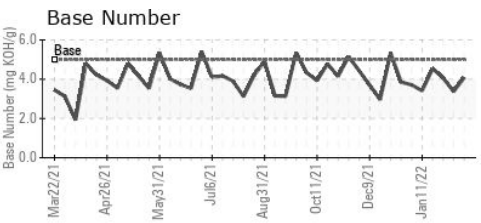












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0623293
Lab Number : 05466262
Unique Number : 9850475
Test Package : MOB 2

Received : 11 Feb 2022
Tested : 15 Feb 2022
Diagnosed : 15 Feb 2022 - Jonathan Hester

EDL NA Recips-Zook
Zook Powerstation, 388 E. Main Street
Leola, PA
US 17540-1925
Contact: Kevin Johnson
kevin.johnson@edlenergy.com
T:
F:

To discuss this sample report, contact Customer Service at 1-800-237-1369.
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Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)