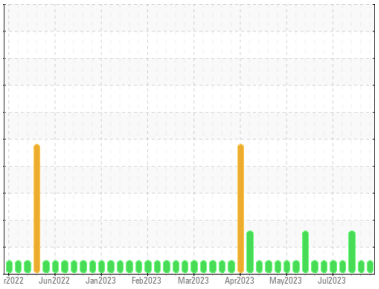
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
HBKM02BE
Component
Biogas Engine
Fluid
SHELL MYSELLA S5 S (48 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		**WC0775332**	WC0775349	WC0775346
Sample Date		Client Info		**17 Aug 2023**	11 Aug 2023	17 Jul 2023
Machine Age	hrs	Client Info		**100851**	100718	100569
Oil Age	hrs	Client Info		**172**	39	566
Oil Changed		Client Info		**Not Changd**	Changed	Oil Added
Sample Status				**NORMAL**	NORMAL	ABNORMAL

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

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**1**	2	4
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**5**	4	8
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m		**24**	24	27
Calcium	ppm	ASTM D5185m		**1473**	1463	1691
Phosphorus	ppm	ASTM D5185m	300	**313**	315	356
Zinc	ppm	ASTM D5185m		**398**	368	427
Sulfur	ppm	ASTM D5185m		**3040**	3191	3599

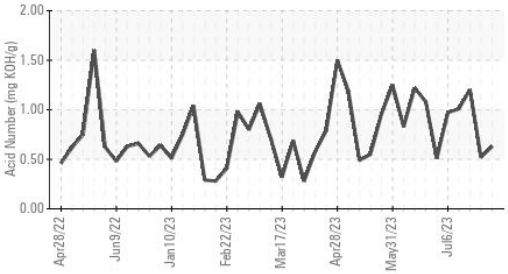
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**75**	39	▲ 184
Sodium	ppm	ASTM D5185m		**0**	1	1
Potassium	ppm	ASTM D5185m	>20	**1**	<1	0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**4.3**	3.5	5.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**18.5**	16.6	21.5

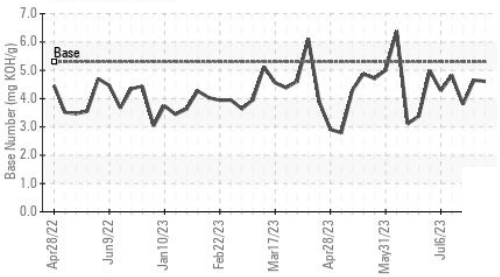
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**11.9**	10.4	15.0
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.63**	0.52	1.20
Base Number (BN)	mg KOH/g	ASTM D2896	5.3	**4.61**	4.65	3.80

OIL ANALYSIS REPORT

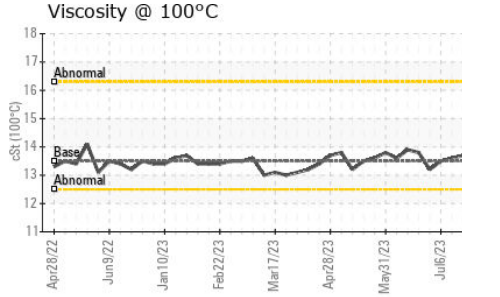
Acid Number



Base Number



Viscosity @ 100°C

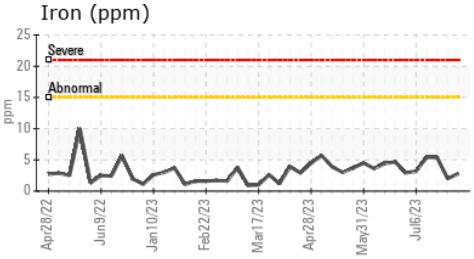


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

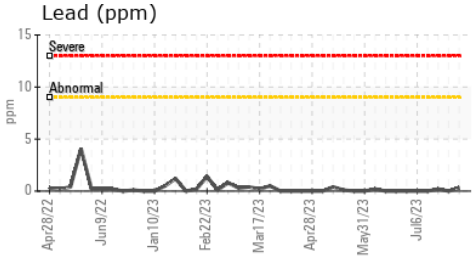
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.5	**13.4**	13.1	13.7

GRAPHS

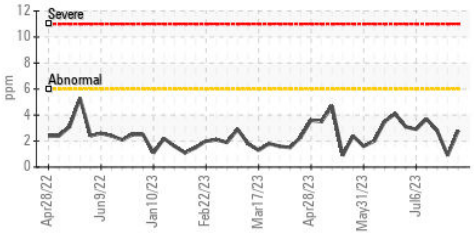
Iron (ppm)



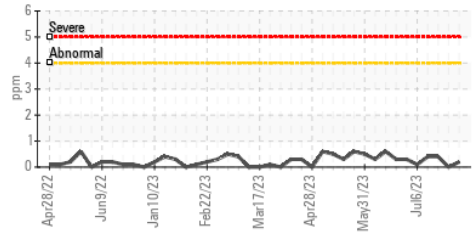
Lead (ppm)



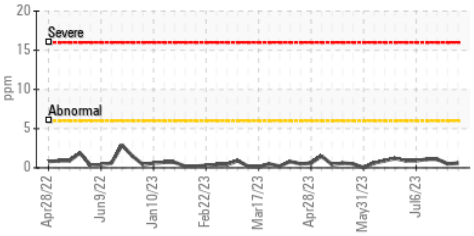
Aluminum (ppm)



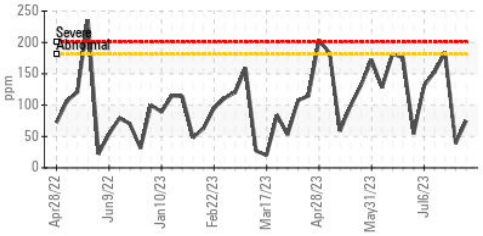
Chromium (ppm)



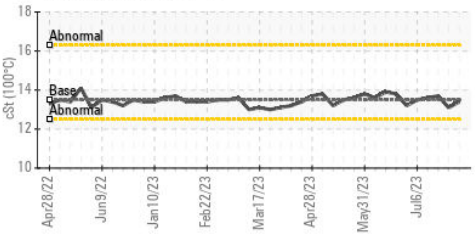
Copper (ppm)



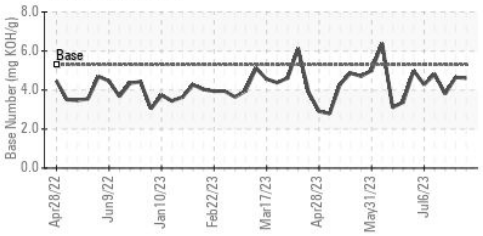
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0775332
Lab Number : 05929851
Unique Number : 10615122
Test Package : MOB 2

Received : 21 Aug 2023
Diagnosed : 22 Aug 2023
Diagnostician : Sean Felton

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)

EDL NA Recips-Honeybrook
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Contact: Christian Adames
Christian.Adames@edlenergy.com
T:
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Report Id: EDLNAR [WUSCAR] 05929851 (Generated: 08/22/2023 15:33:11) Rev: 1

Submitted By: Samantha Gauger