

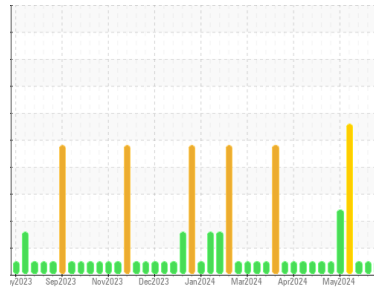


OIL ANALYSIS REPORT



Machine Id
MTNM01BE
 Component
Biogas Engine
 Fluid
SHELL MYSELLA S5 N 40 (160 GAL)

Sample Rating Trend



NORMAL



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			WC0775202	WC0775194	WC0775226
Sample Date	Client Info			13 Jun 2024	28 May 2024	21 May 2024
Machine Age	hrs	Client Info		43136	43106	42930
Oil Age	hrs	Client Info		351	391	145
Oil Changed	Client Info			N/A	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel	WC Method	>4.0		<1.0	<1.0	<1.0
Water	WC Method			NEG	NEG	NEG
Glycol	WC Method			NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ	ASTM D8184			17	---	---
Iron	ppm	ASTM D5185m	>14	4	4	3
Chromium	ppm	ASTM D5185m	>3	0	0	0
Nickel	ppm	ASTM D5185m		0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>5	3	3	3
Lead	ppm	ASTM D5185m	>8	0	0	<1
Copper	ppm	ASTM D5185m	>5	1	1	<1
Tin	ppm	ASTM D5185m	>3	0	4	2
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		6	2	4
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		2	1	1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		22	17	14
Calcium	ppm	ASTM D5185m		1743	1795	1595
Phosphorus	ppm	ASTM D5185m	300	340	392	332
Zinc	ppm	ASTM D5185m		430	476	430
Sulfur	ppm	ASTM D5185m		3579	4065	3835

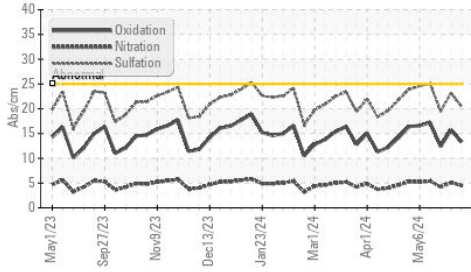
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>180	130	173	90
Sodium	ppm	ASTM D5185m	>20	3	1	1
Potassium	ppm	ASTM D5185m	>20	1	0	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>16	4.5	5.1	4.2
Sulfation	Abs/.1mm	*ASTM D7415		20.4	23.2	19.5

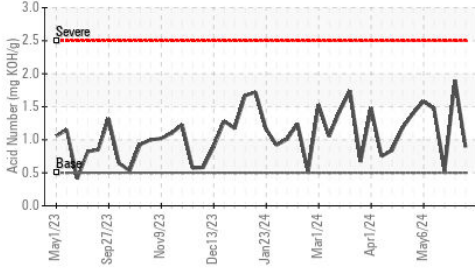


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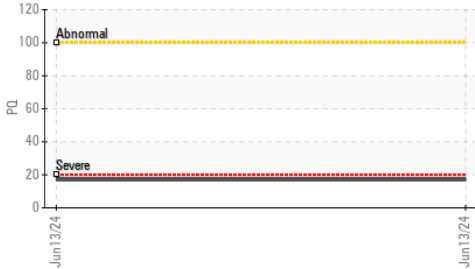
FT-IR (Direct Trend)



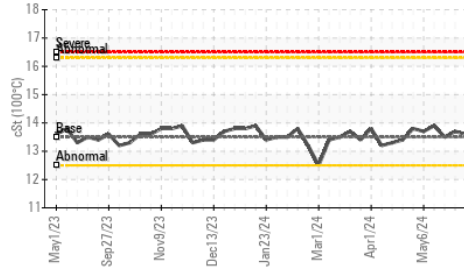
Acid Number



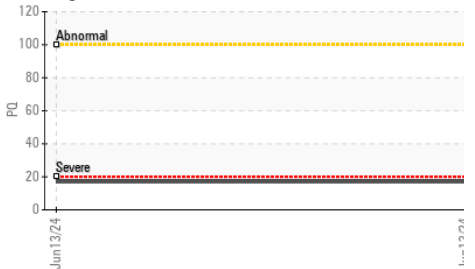
PQ



Viscosity @ 100°C



PQ



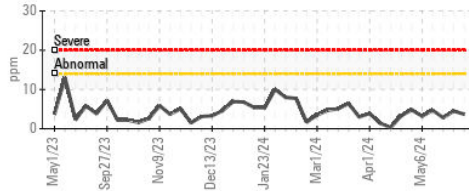
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414	13.3	15.7	12.4
Acid Number (AN)	mg KOH/g	ASTM D8045	0.89	1.90	0.53
Base Number (BN)	mg KOH/g	ASTM D2896	3.57	3.28	4.09

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	NEG	NEG	NEG
Free Water	scalar	*Visual	NEG	NEG	NEG

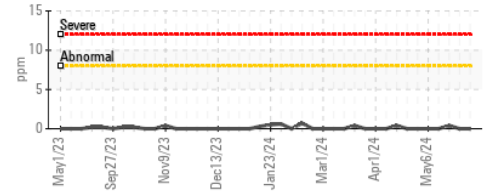
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.6	13.7	13.5

GRAPHS

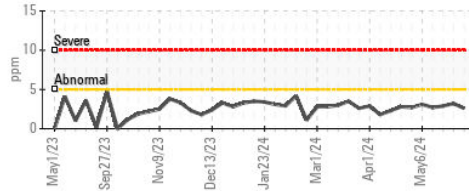
Iron (ppm)



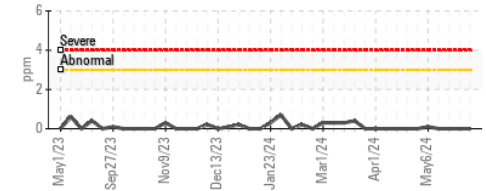
Lead (ppm)



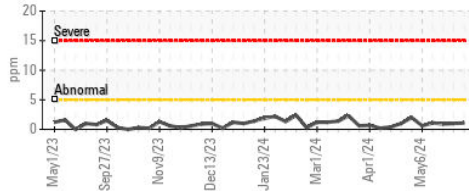
Aluminum (ppm)



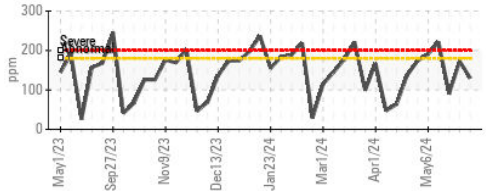
Chromium (ppm)



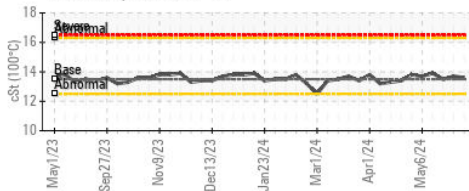
Copper (ppm)



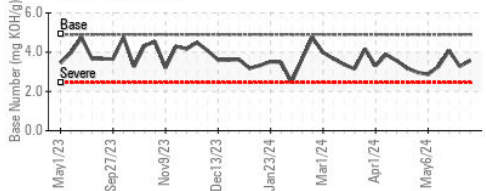
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0775202

Lab Number : 06214922

Unique Number : 11087786

Test Package : MOB 2 (Additional Tests: PQ)

Received : 19 Jun 2024

Tested : 20 Jun 2024

Diagnosed : 21 Jun 2024 - Sean Felton

EDL NA Recips-Morgantown

Morgantown Powerstation, 950 Shiloh

Morgantown, PA

US 19543

Contact: ARON GUNN

aron.gunn@edlenergy.com

T:

F:

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)