

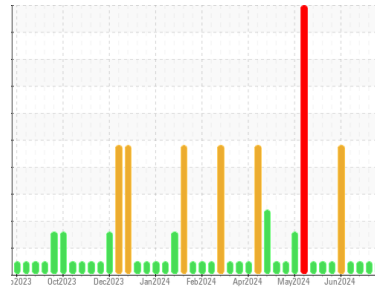


OIL ANALYSIS REPORT



Machine Id
HBKM02BE
 Component
Biogas Engine
 Fluid
SHELL MYSELLA S5 S (48 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		WC0775162	WC0775488	WC0775486
Sample Date	Client Info		11 Jul 2024	01 Jul 2024	26 Jun 2024
Machine Age	hrs	Client Info	107896	107670	107557
Oil Age	hrs	Client Info	454	228	115
Oil Changed	Client Info		Changed	Oil Added	Oil Added
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		16	14	16
Iron	ppm	ASTM D5185m >14	5	4	4
Chromium	ppm	ASTM D5185m >3	0	<1	<1
Nickel	ppm	ASTM D5185m	0	<1	<1
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	<1	0
Aluminum	ppm	ASTM D5185m >5	2	3	2
Lead	ppm	ASTM D5185m >8	0	0	0
Copper	ppm	ASTM D5185m >5	1	2	2
Tin	ppm	ASTM D5185m >3	2	2	<1
Vanadium	ppm	ASTM D5185m	0	<1	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	65	92	108
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	<1	2	5
Manganese	ppm	ASTM D5185m	0	<1	<1
Magnesium	ppm	ASTM D5185m	28	28	51
Calcium	ppm	ASTM D5185m	1693	1773	1518
Phosphorus	ppm	ASTM D5185m 300	440	451	443
Zinc	ppm	ASTM D5185m	556	562	543
Sulfur	ppm	ASTM D5185m	3998	3982	3908

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	160	105	62
Sodium	ppm	ASTM D5185m >20	3	3	4
Potassium	ppm	ASTM D5185m >20	0	0	3

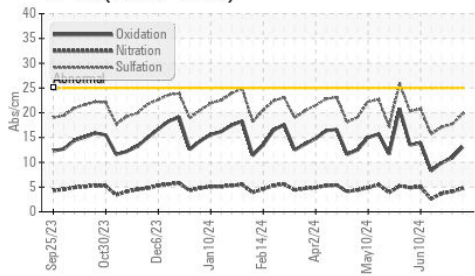
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0.1	0
Nitration	Abs/cm	*ASTM D7624	4.7	4.1	3.7
Sulfation	Abs/.1mm	*ASTM D7415	19.7	17.7	17.1

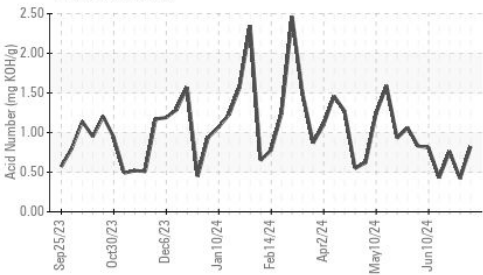


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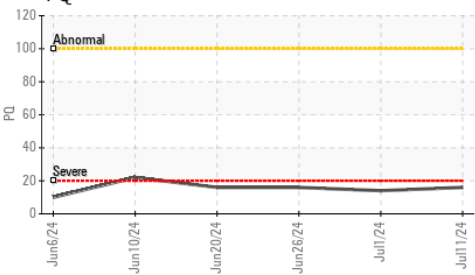
FT-IR (Direct Trend)



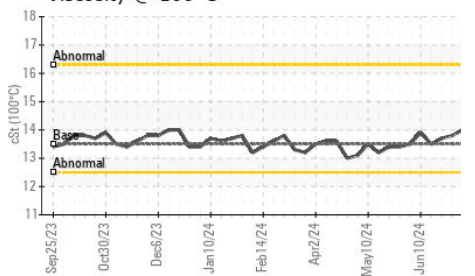
Acid Number



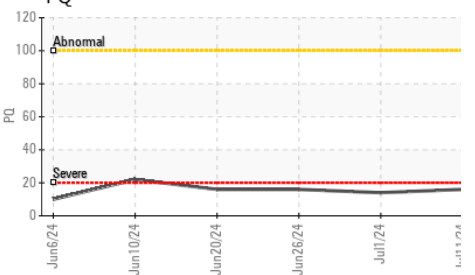
PQ



Viscosity @ 100°C



PQ



FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414	13.1	10.9	9.9
Acid Number (AN)	mg KOH/g	ASTM D8045	0.82	0.42	0.76
Base Number (BN)	mg KOH/g	ASTM D2896 5.3	4.20	4.83	4.98

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 13.5	14.0	13.8	13.7

GRAPHS

Iron (ppm)

Lead (ppm)

Aluminum (ppm)

Chromium (ppm)

Copper (ppm)

Silicon (ppm)

Viscosity @ 100°C

Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0775162 **Received** : 15 Jul 2024
Lab Number : **06236245** **Tested** : 16 Jul 2024
Unique Number : 11125079 **Diagnosed** : 16 Jul 2024 - Sean Felton
Test Package : MOB 2 (Additional Tests: PQ)

EDL NA Recips-Honeybrook
 Honey Brook Powerstation, 481 S. Churchtown Road
 Narvon, PA
 US 17555-9574
 Contact: Christian Adames
 Christian.Adames@edlenergy.com

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)