

OIL ANALYSIS REPORT

Sample Rating Trend







LGS00178

Component

Biogas Engine

MAHLER Q8 Mahler G8 SAE 40 (141 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.

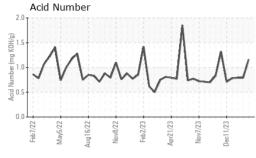
Fluid Condition

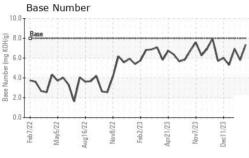
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

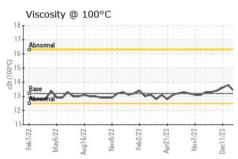
		32022 May20	22 Aug2022 Nov2022	Feb2023 Apr2023 Nov2023	Dec2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0660922	WC0660923	WC0660914
Sample Date		Client Info		11 Jan 2024	03 Jan 2024	27 Dec 2023
Machine Age	hrs	Client Info		65789	65595	65439
Oil Age	hrs	Client Info		26	294	139
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	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	>45	0	0	0
Chromium	ppm	ASTM D5185m	>2	0	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	2	2
Lead	ppm	ASTM D5185m	>5	0	1	1
Copper	ppm	ASTM D5185m	>14	1	2	2
Tin	ppm	ASTM D5185m	>13	0	1	<1
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		0	<1	0
Б.						
Barium	ppm	ASTM D5185m		0	0	0
		ASTM D5185m ASTM D5185m		0	0	0
Molybdenum	ppm			-		
Molybdenum Manganese	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m		0 <1	0 <1	0 <1
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 8	0 <1 6	0 <1 8
Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 8 2101	0 <1 6 2210	0 <1 8 2186
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 8 2101 433	0 <1 6 2210 465	0 <1 8 2186 484
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 <1 8 2101 433 510	0 <1 6 2210 465 534	0 <1 8 2186 484 547
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >200	0 <1 8 2101 433 510 2561	0 <1 6 2210 465 534 3933	0 <1 8 2186 484 547 3564
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		0 <1 8 2101 433 510 2561 current	0 <1 6 2210 465 534 3933 history1	0 <1 8 2186 484 547 3564 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m		0 <1 8 2101 433 510 2561 current 21	0 <1 6 2210 465 534 3933 history1 118	0 <1 8 2186 484 547 3564 history2 63
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>200	0 <1 8 2101 433 510 2561 current 21 0	0 <1 6 2210 465 534 3933 history1 118 <1	0 <1 8 2186 484 547 3564 history2 63 2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>200 >20	0 <1 8 2101 433 510 2561 current 21 0 0	0 <1 6 2210 465 534 3933 history1 118 <1 0	0 <1 8 2186 484 547 3564 history2 63 2 <1
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	>200 >20	0 <1 8 2101 433 510 2561 current 21 0 0 current	0 <1 6 2210 465 534 3933 history1 118 <1 0 history1	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m	>200 >20 limit/base	0 <1 8 2101 433 510 2561 current 21 0 0 current 0	0	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2 0
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>200 >20 limit/base >20	0 <1 8 2101 433 510 2561 current 21 0 0 current 0 4.8	0	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2 0 5.3
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D78185m Method	>200 >20 limit/base >20 >30 limit/base	0 <1 8 2101 433 510 2561 current 21 0 0 4.8 15.0 current	0	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2 0 5.3 16.7 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7844	>200 >20 limit/base >20 >30	0 <1 8 2101 433 510 2561 current 21 0 0 4.8 15.0 current 8.7	0	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2 0 5.3 16.7 history2 9.2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D78185m Method	>200 >20 limit/base >20 >30 limit/base	0 <1 8 2101 433 510 2561 current 21 0 0 4.8 15.0 current	0	0 <1 8 2186 484 547 3564 history2 63 2 <1 history2 0 5.3 16.7 history2



OIL ANALYSIS REPORT



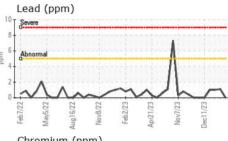


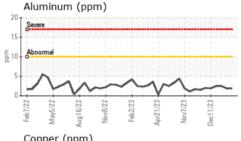


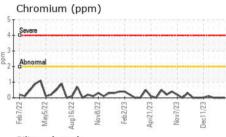
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

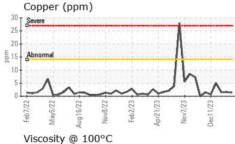
FLUID PROPER	TILS	method	ilmit/base		nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	13.2	13.1	13.5	13.4

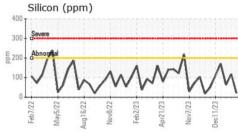
Iron	(ppi	m)					
Severe						1	
Abnor	mal					1	
	~	~				11	_
Feb7/22	May5/22	Aug16/22	Nov8/22	Feb2/23	Apr21/23	Nov7/23	Dec11/23
		o⊲ m (pp			A		

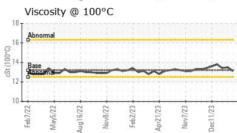


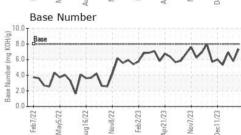
















Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 2

: 06062157 : 10833539

: WC0660922

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 16 Jan 2024 Diagnosed : 18 Jan 2024 Diagnostician : Don Baldridge

BI-COUNTY 3214 DOVER RD WOODLAWN, TN US 37191

Contact: KEVIN WEAVER

kevin.weaver@cubedistrictenergy.com T:

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)

Report Id: BICWOOTN [WUSCAR] 06062157 (Generated: 01/19/2024 17:50:54) Rev: 1

Submitted By: ?

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