

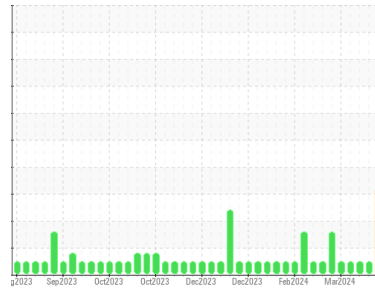


OIL ANALYSIS REPORT



Machine Id
CATERPILLAR GM01
 Component
Biogas Engine
 Fluid
MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

Sample Rating Trend



WATER



DIAGNOSIS

▲ Recommendation

We recommend an early resample to monitor this condition.

▲ Wear

Bearing and/or bushing wear is indicated. High wear metal levels reflect the reported failure.

▲ Contamination

There is a light concentration of water present 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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0870546	WC0870559	WC0870558
Sample Date	Client Info		13 May 2024	25 Mar 2024	18 Mar 2024
Machine Age	hrs	Client Info	0	26014	25870
Oil Age	hrs	Client Info	0	128	232
Oil Changed	Client Info		N/A	Changed	N/A
Sample Status			ABNORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>4.0	<1.0	<1.0	<1.0

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>45	12	8	41
Chromium	ppm	ASTM D5185m	>2	<1	0	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		28	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	2	2
Lead	ppm	ASTM D5185m	>5	▲ 3	<1	0
Copper	ppm	ASTM D5185m	>14	▲ 12	<1	0
Tin	ppm	ASTM D5185m	>13	0	1	0
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		0	<1	0
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		0	<1	<1
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		1	5	11
Calcium	ppm	ASTM D5185m		1541	1430	1544
Phosphorus	ppm	ASTM D5185m		391	404	416
Zinc	ppm	ASTM D5185m		437	457	489
Sulfur	ppm	ASTM D5185m		2266	2311	2450

CONTAMINANTS

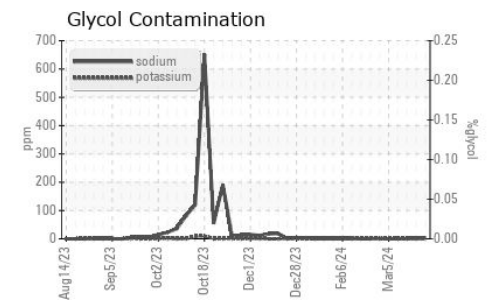
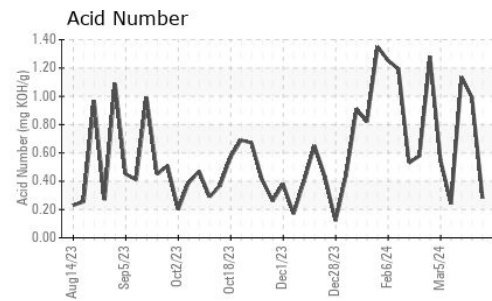
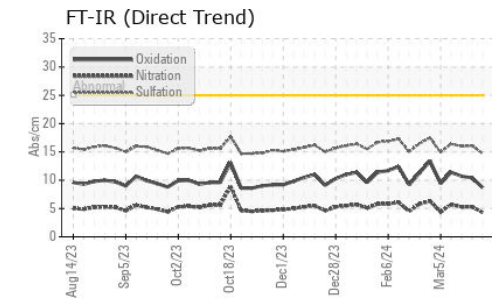
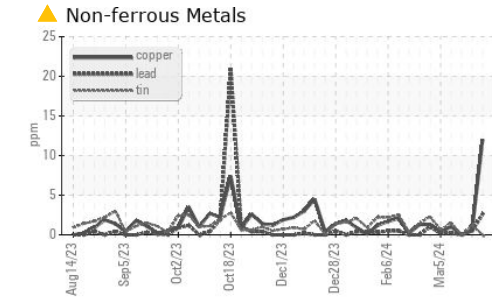
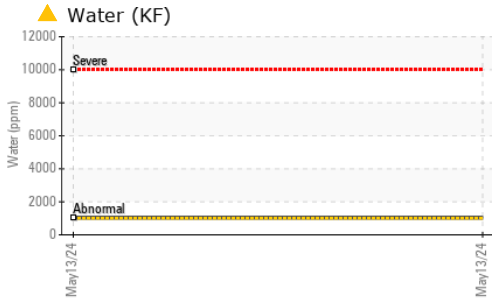
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>200	28	81	107
Sodium	ppm	ASTM D5185m		3	1	<1
Potassium	ppm	ASTM D5185m	>20	0	2	0
Water	%	ASTM D6304	>0.1	▲ 0.102	---	---
ppm Water	ppm	ASTM D6304	>1000	▲ 1020	---	---
Glycol	%	*ASTM D2982		NEG	NEG	NEG

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	4.3	5.3	5.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	14.7	16.1	16.0



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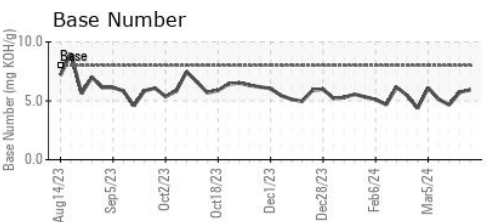
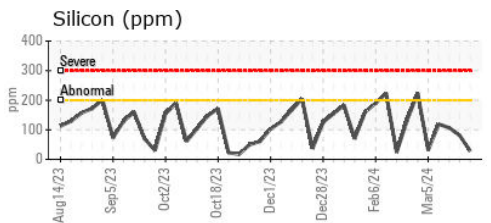
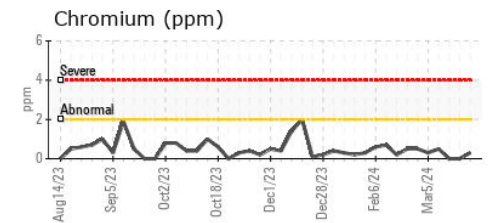
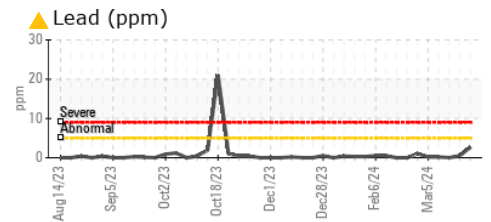
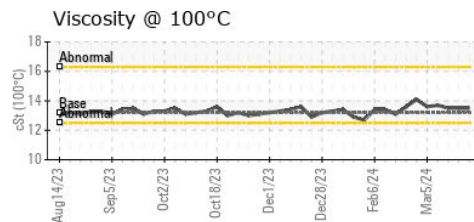
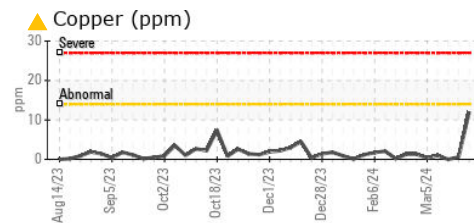
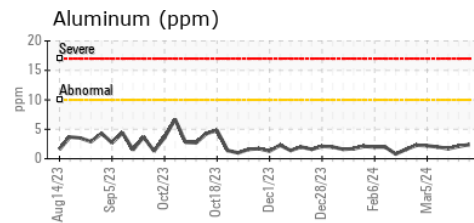
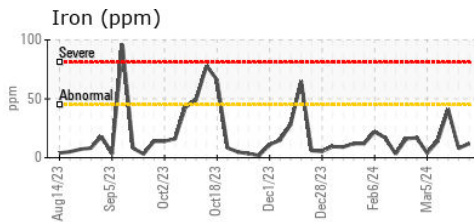


FLUID DEGRADATION	method	limit/base	current	history1	history2	
Oxidation	Abs./1mm	*ASTM D7414	>25	8.7	10.4	10.7
Acid Number (AN)	mg KOH/g	ASTM D8045		0.28	0.989	1.136
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	5.93	5.73	4.65

VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	NONE	LIGHT	
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	>0.1	0.2%	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.2	13.5	13.5	13.5

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0870546 **Received** : 14 May 2024
Lab Number : **06178988** **Tested** : 17 May 2024
Unique Number : 11030314 **Diagnosed** : 17 May 2024 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: GLYCOL, KF)

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)

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