



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
E-3 - RICHLAND CREEK
 Component
Biogas Engine
 Fluid
MAHLER Q8 Mahler G8 SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0914262	WC0914266	WC0914312
Sample Date		Client Info		06 May 2024	23 Apr 2024	22 Apr 2024
Machine Age	hrs	Client Info		50139	49911	24196
Oil Age	hrs	Client Info		3511	3283	3968
Filter Age	hrs	Client Info		3511	3283	3968
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Filter Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>45	12	12	4
Chromium	ppm	ASTM D5185m	>2	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>5	0	0	<1
Aluminum	ppm	ASTM D5185m	>10	5	5	4
Lead	ppm	ASTM D5185m	>5	1	<1	2
Copper	ppm	ASTM D5185m	>14	2	2	1
Tin	ppm	ASTM D5185m	>13	8	6	1
Vanadium	ppm	ASTM D5185m		0	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

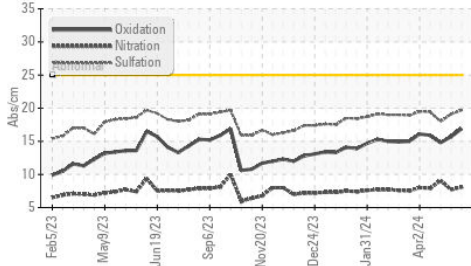
Silicon	ppm	ASTM D5185m	>200	57	51	6
Potassium	ppm	ASTM D5185m	>20	<1	0	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	8.1	7.7	9.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.7	19.1	18.0
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

FLUID CONDITION

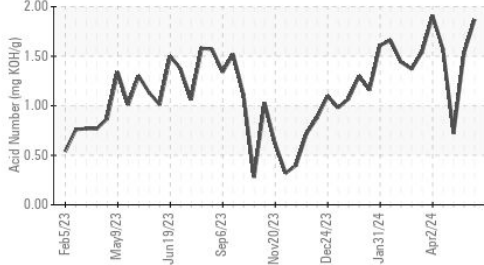
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		3	2	0
Boron	ppm	ASTM D5185m		1	<1	<1
Barium	ppm	ASTM D5185m		<1	0	0
Molybdenum	ppm	ASTM D5185m		2	2	2
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		13	15	12
Calcium	ppm	ASTM D5185m		2457	2541	2578
Phosphorus	ppm	ASTM D5185m		423	446	494
Zinc	ppm	ASTM D5185m		508	507	544
Sulfur	ppm	ASTM D5185m		2722	2926	2732
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	15.7	14.8
Acid Number (AN)	mg KOH/g	ASTM D8045		1.87	1.53	0.72
Base Number (BN)	mg KOH/g	ASTM D2896	8.0	6.00	6.24	6.07
Visc @ 100°C	cSt	ASTM D445	13.2	14.2	13.9	14.3

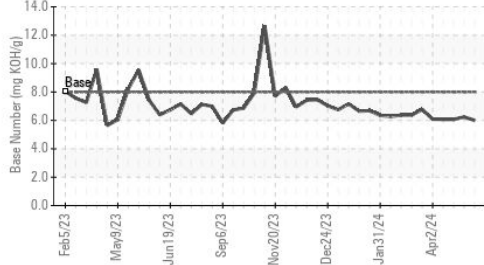
FT-IR (Direct Trend)



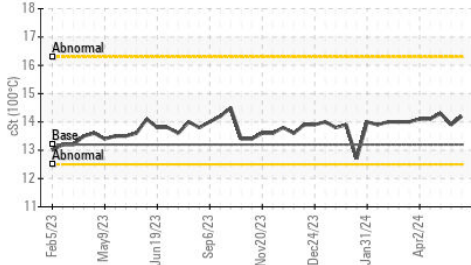
Acid Number



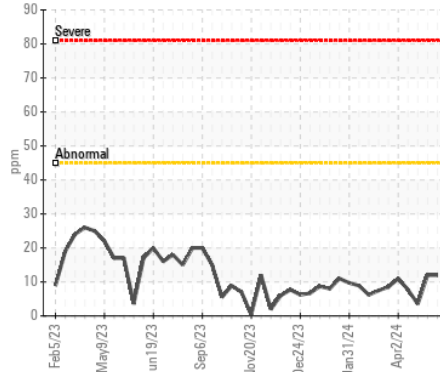
Base Number



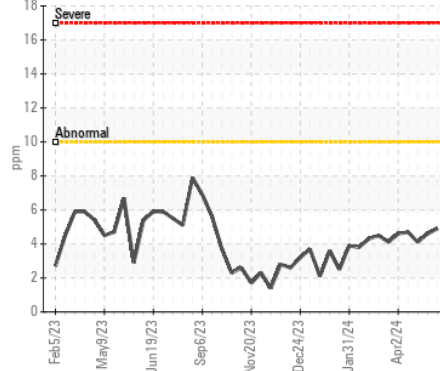
Viscosity @ 100°C



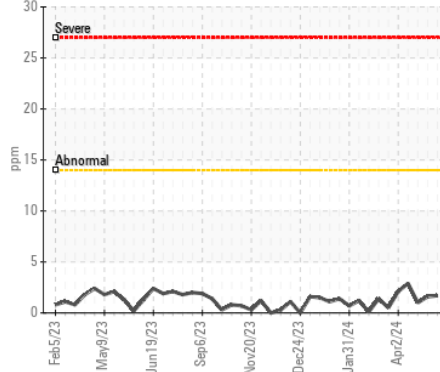
Iron (ppm)



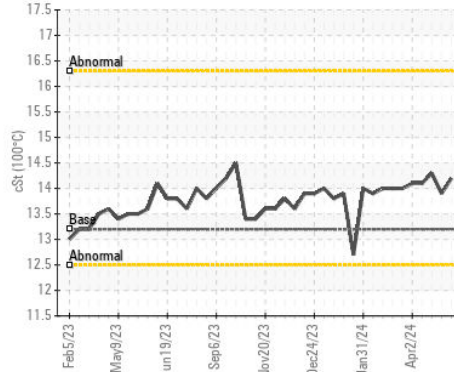
Aluminum (ppm)



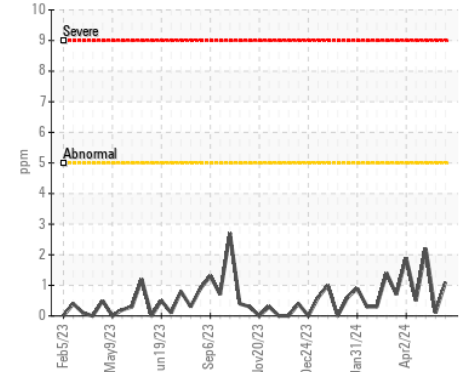
Copper (ppm)



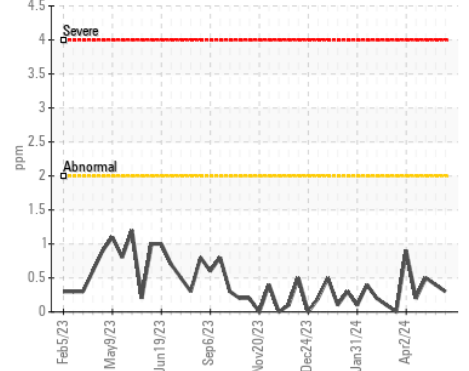
Viscosity @ 100°C



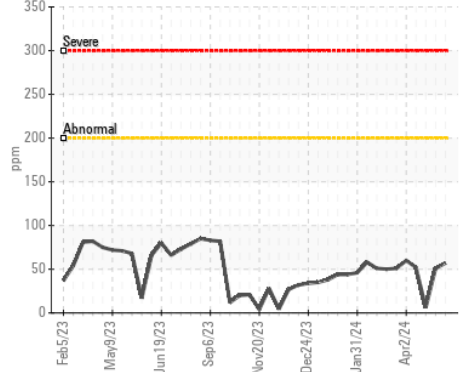
Lead (ppm)



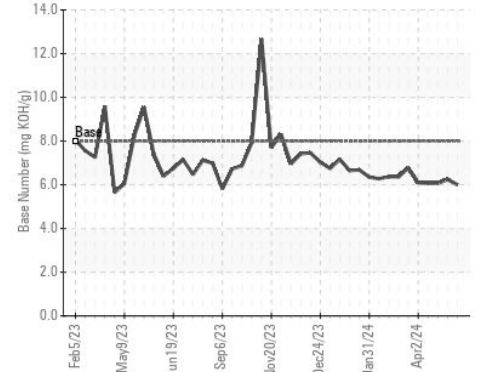
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0914262
Lab Number : 06175697
Unique Number : 11021750
Test Package : MOB 2

Received : 10 May 2024
Tested : 13 May 2024
Diagnosed : 13 May 2024 - Sean Felton

CUBE DISTRICT ENERGY - MAS GEORGIA LFG PLANT SITE
 5691 S RICHLAND CREEK RD
 BUFORD, GA
 US 30518
 Contact: RYAN INGALLS
 ryan.ingalls@cubedistrictenergy.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)

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