

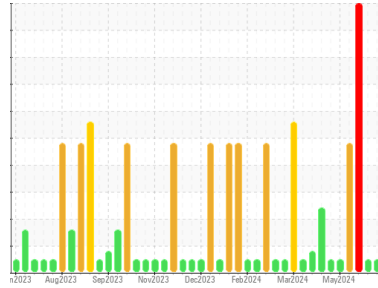


OIL ANALYSIS REPORT



Machine Id
BRCM03BE (S/N 6ZJ00395)
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (150 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 acceptable for the time in service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0938384	WC0760841	WC0760836
Sample Date	Client Info		07 Jun 2024	04 Jun 2024	17 May 2024
Machine Age	hrs	Client Info	93854	93786	93505
Oil Age	hrs	Client Info	174	106	510
Oil Changed	Client Info		Not Chngd	Not Chngd	Not Chngd
Sample Status			NORMAL	NORMAL	SEVERE

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		15	---	---
Iron	ppm	ASTM D5185m >14	4	2	6
Chromium	ppm	ASTM D5185m >3	<1	0	<1
Nickel	ppm	ASTM D5185m	0	0	<1
Titanium	ppm	ASTM D5185m	<1	0	<1
Silver	ppm	ASTM D5185m	0	0	<1
Aluminum	ppm	ASTM D5185m >5	2	2	4
Lead	ppm	ASTM D5185m >8	2	<1	4
Copper	ppm	ASTM D5185m >5	2	<1	▲ 6
Tin	ppm	ASTM D5185m >3	3	1	▲ 6
Vanadium	ppm	ASTM D5185m	<1	<1	<1
Cadmium	ppm	ASTM D5185m	0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	10	8	8
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	11	11	8
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	11	15	26
Calcium	ppm	ASTM D5185m	1783	1753	1862
Phosphorus	ppm	ASTM D5185m	265	272	304
Zinc	ppm	ASTM D5185m	320	331	385
Sulfur	ppm	ASTM D5185m	2357	2210	2725

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	122	81	▲ 324
Sodium	ppm	ASTM D5185m >20	6	4	0
Potassium	ppm	ASTM D5185m >20	4	3	4

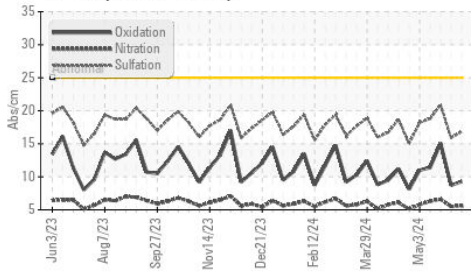
INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0	0.1
Nitration	Abs/cm	*ASTM D7624	5.6	5.5	6.6
Sulfation	Abs/.1mm	*ASTM D7415	16.8	15.9	20.9

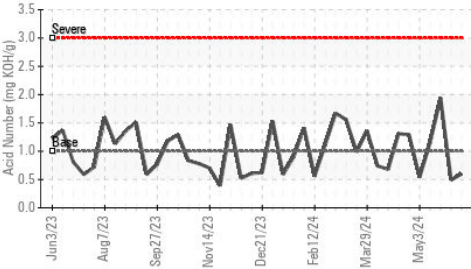


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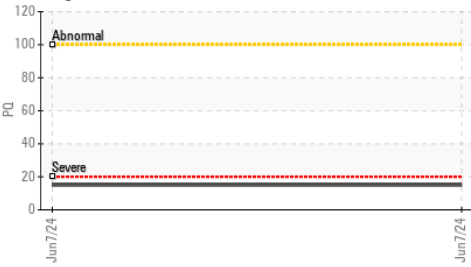
FT-IR (Direct Trend)



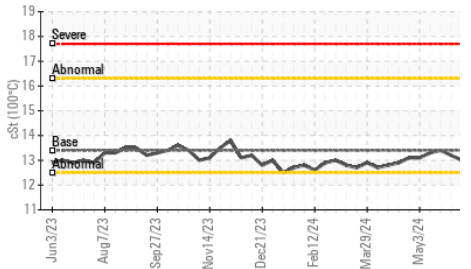
Acid Number



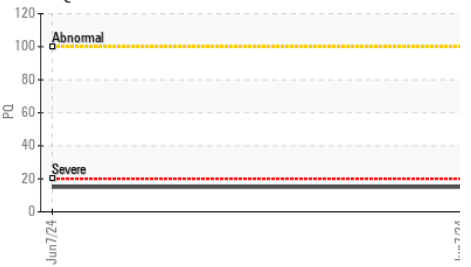
PQ



Viscosity @ 100°C



PQ



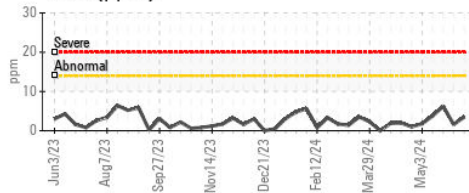
FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414	9.3	8.7	15.1
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.49	1.94
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	4.56	3.68

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

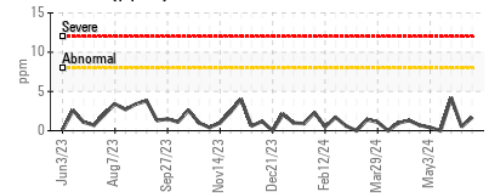
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	13.2	13.4

GRAPHS

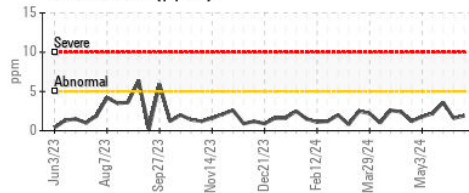
Iron (ppm)



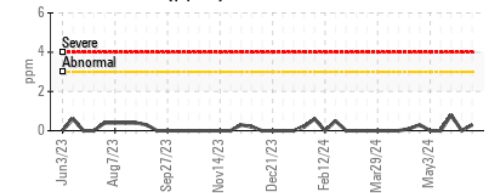
Lead (ppm)



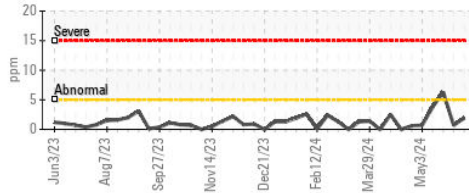
Aluminum (ppm)



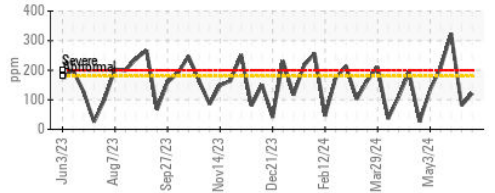
Chromium (ppm)



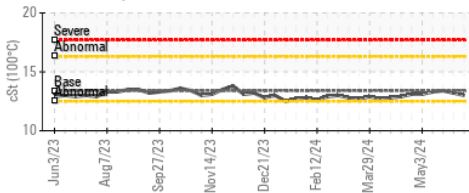
Copper (ppm)



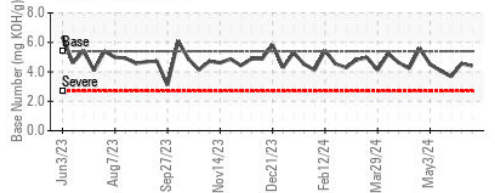
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : WC0938384

Lab Number : **06204878**

Unique Number : 11072339

Test Package : MOB 2 (Additional Tests: pq)

Received : 10 Jun 2024

Tested : 12 Jun 2024

Diagnosed : 12 Jun 2024 - Don Baldrige

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)

EDL NA Recips-Brown County

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GEORGETOWN, OH

US 45121

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