

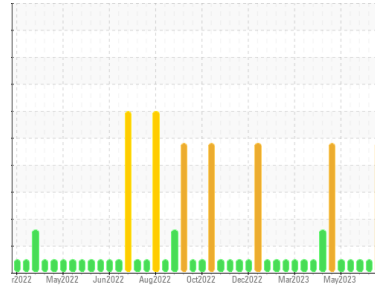


OIL ANALYSIS REPORT



Machine Id
BRCM01BE (S/N GZJ00658)
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check for a possible overhear condition. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear

Tin ppm levels are abnormal. Bearing wear is indicated.

Contamination

There is a moderate concentration of dirt present in the oil.

Fluid Condition

The AN level is above the recommended limit. The BN result is marginal and reaching the low end of its acceptable limit, indicating the remaining reserve alkalinity is depleting. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0760994	WC0761004	WC0760997
Sample Date	Client Info		18 Jul 2023	27 Jun 2023	12 Jun 2023
Machine Age	hrs	Client Info	70320	69876	69527
Oil Age	hrs	Client Info	520	76	247
Oil Changed	Client Info		N/A	N/A	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
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>15	7	<1	2
Chromium	ppm	ASTM D5185m	>4	<1	0	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>6	3	2	1
Lead	ppm	ASTM D5185m	>9	2	<1	0
Copper	ppm	ASTM D5185m	>6	2	<1	<1
Tin	ppm	ASTM D5185m	>4	▲ 7	1	2
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		8	8	20
Barium	ppm	ASTM D5185m		2	0	0
Molybdenum	ppm	ASTM D5185m		9	7	11
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		38	32	58
Calcium	ppm	ASTM D5185m		1939	1696	1839
Phosphorus	ppm	ASTM D5185m		310	278	350
Zinc	ppm	ASTM D5185m		395	345	424
Sulfur	ppm	ASTM D5185m		2605	1944	2532

CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>181	▲ 314	49	108
Sodium	ppm	ASTM D5185m		0	0	2
Potassium	ppm	ASTM D5185m	>20	2	2	3

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.3	5.8	5.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.4	16.0	18.0

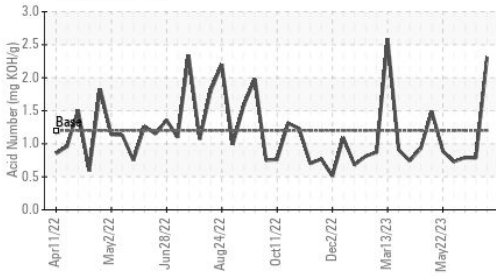
FLUID DEGRADATION

	method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.1	8.8	12.2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	▲ 2.31	0.786	0.79
Base Number (BN)	mg KOH/g	ASTM D2896	4.5	▲ 3.48	5.68	5.03

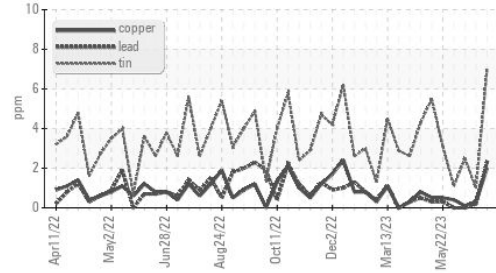


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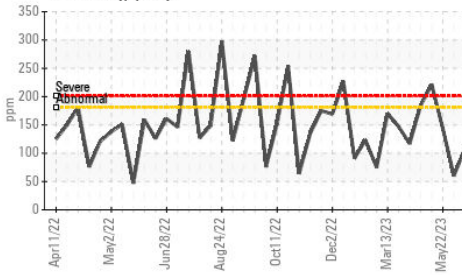
▲ Acid Number



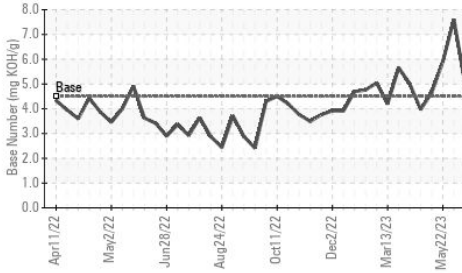
▲ Non-ferrous Metals



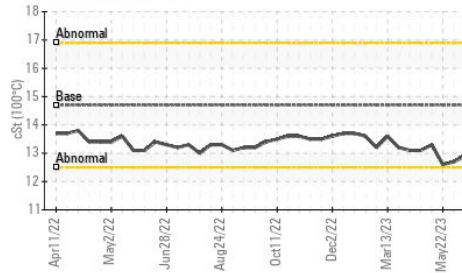
▲ Silicon (ppm)



▲ Base Number



Viscosity @ 100°C

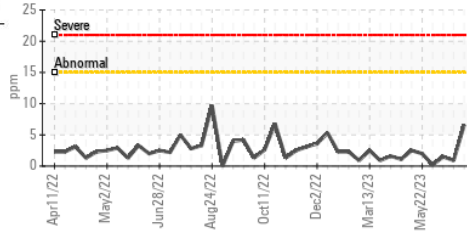


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

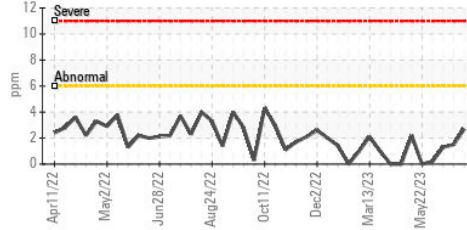
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	13.3	12.8

GRAPHS

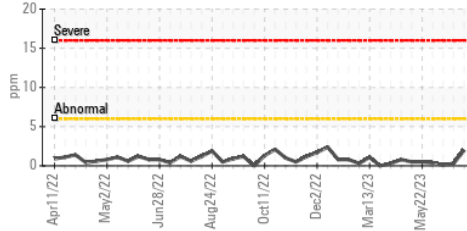
Iron (ppm)



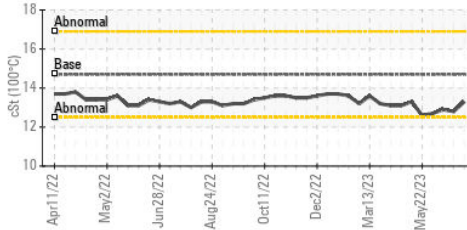
Aluminum (ppm)



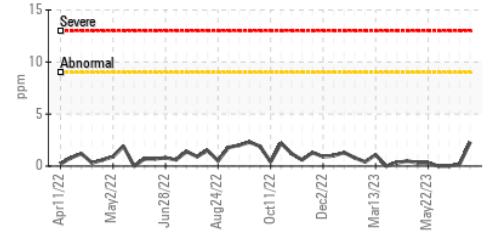
Copper (ppm)



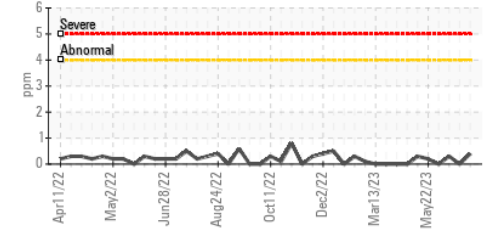
Viscosity @ 100°C



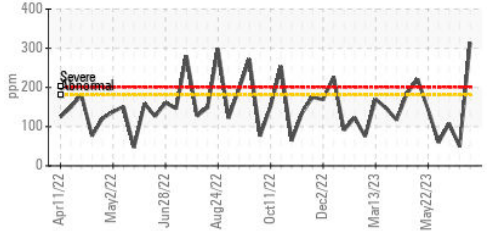
Lead (ppm)



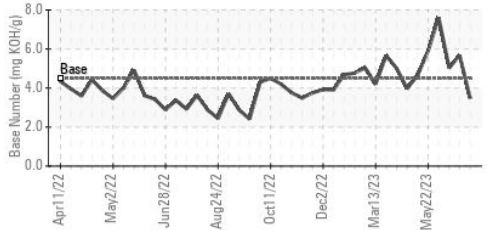
Chromium (ppm)



▲ Silicon (ppm)



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0760994 **Received** : 21 Jul 2023
Lab Number : 05904509 **Diagnosed** : 25 Jul 2023
Unique Number : 10565865 **Diagnostician** : Angela Borella
Test Package : MOB 2

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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