

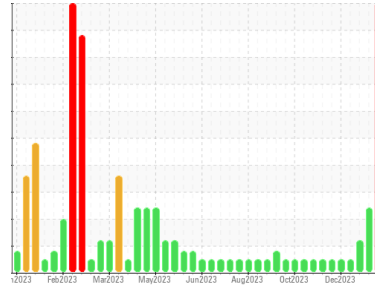


OIL ANALYSIS REPORT



Machine Id
Grand Blanc CAT 1 GBLM01BE
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. (Customer Sample Comment: 200hr Oil Sample)

Wear

Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0870059	WC0870115	WC0870110
Sample Date	Client Info		30 Jan 2024	16 Jan 2024	05 Jan 2024
Machine Age	hrs	Client Info	84362	84104	83925
Oil Age	hrs	Client Info	201	784	624
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			SEVERE	ABNORMAL	ABNORMAL

CONTAMINATION

	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 >15	22	13	4
Chromium	ppm	ASTM D5185m >4	<1	<1	<1
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m	<1	<1	<1
Silver	ppm	ASTM D5185m >5	0	0	0
Aluminum	ppm	ASTM D5185m >6	2	2	2
Lead	ppm	ASTM D5185m >9	14	1	2
Copper	ppm	ASTM D5185m >14	5	2	<1
Tin	ppm	ASTM D5185m >4	2	2	2
Vanadium	ppm	ASTM D5185m	0	<1	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	19	8	9
Barium	ppm	ASTM D5185m	<1	0	0
Molybdenum	ppm	ASTM D5185m	12	5	3
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	20	35	36
Calcium	ppm	ASTM D5185m	1655	1958	1987
Phosphorus	ppm	ASTM D5185m	272	317	321
Zinc	ppm	ASTM D5185m	343	413	410
Sulfur	ppm	ASTM D5185m	2564	3280	3242

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >181	87	155	115
Sodium	ppm	ASTM D5185m	86	<1	2
Potassium	ppm	ASTM D5185m >20	2	0	<1

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	6.0	6.8	6.5
Sulfation	Abs/.1mm	*ASTM D7415 >30	22.3	27.6	26.0

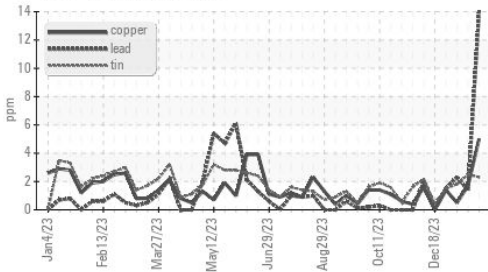
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	11.3	18.4	17.7
Acid Number (AN)	mg KOH/g	ASTM D8045 1.1	1.25	2.39	2.47
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	3.33	2.25	2.78

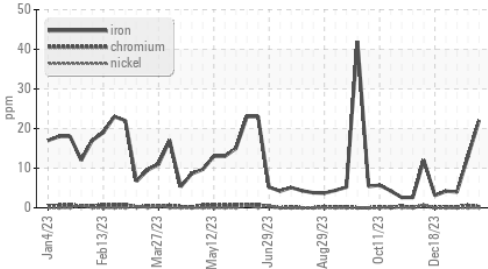


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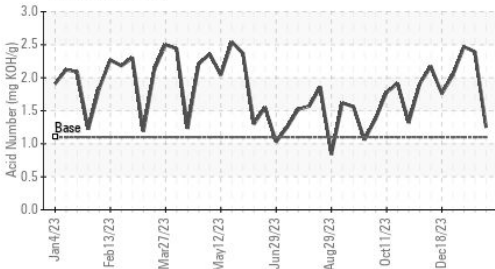
Non-ferrous Metals



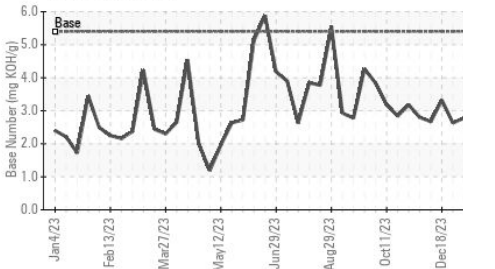
Ferrous Alloys



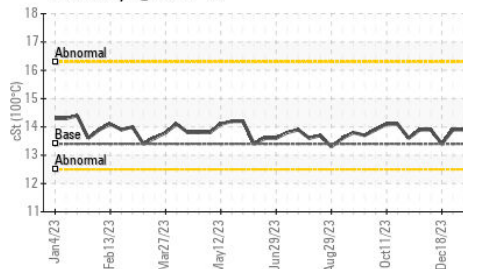
Acid Number



Base Number



Viscosity @ 100°C

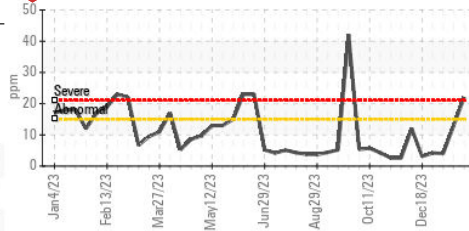


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

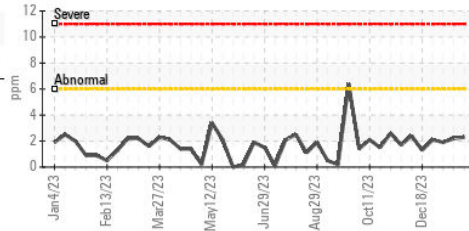
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	13.3	13.8

GRAPHS

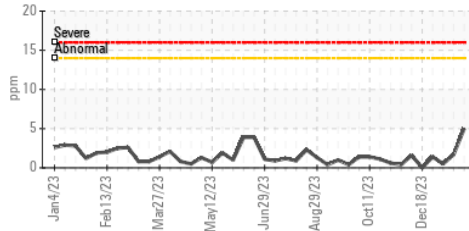
Iron (ppm)



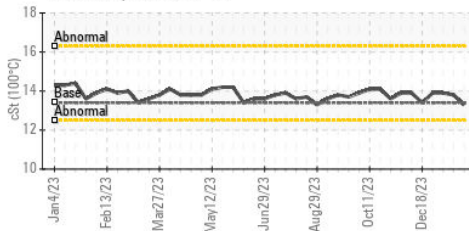
Aluminum (ppm)



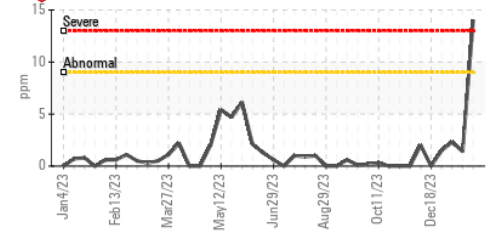
Copper (ppm)



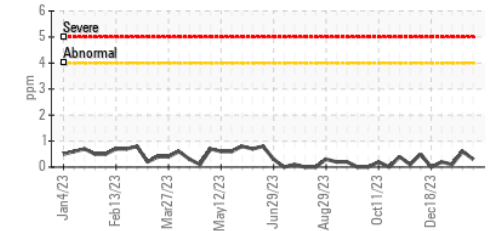
Viscosity @ 100°C



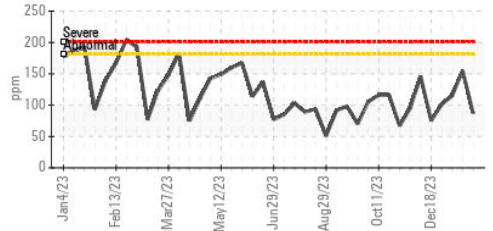
Lead (ppm)



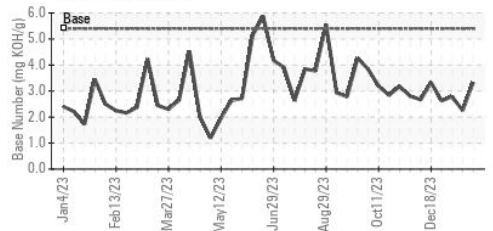
Chromium (ppm)



Silicon (ppm)



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0870059
 Lab Number : 06077051
 Unique Number : 10859142
 Test Package : MOB 2

Received : 01 Feb 2024
 Diagnosed : 02 Feb 2024
 Diagnostician : Don Baldrige

EDL NA Recips-Grand Blanc
 Grand Blanc Powerstation, 2361 West Grand Blanc Road
 Grand Blanc, MI
 US 48439

Contact: Tony Saint Marie
 tony.saintmarie@edlenergy.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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