

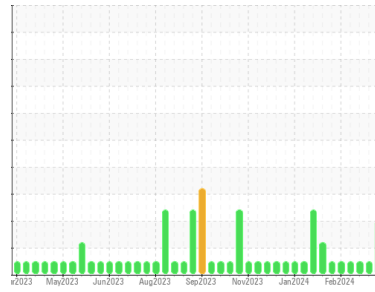


OIL ANALYSIS REPORT



Machine Id
Grand Blanc CAT 7 GBLM07BE
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

Sample Rating Trend



DEGRADATION



DIAGNOSIS

Recommendation

The oil is near the end of its useful service life, recommend schedule an oil change. We recommend an early resample to monitor this condition. (Customer Sample Comment: 200 hour oil sample after fluid and filter change.)

Wear

The tin level is abnormal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The AN level is at the top-end of the recommended limit. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0905697	WC0905748	WC0905744
Sample Date	Client Info		10 Apr 2024	03 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info	129949	129760	129530
Oil Age	hrs	Client Info	0	0	211
Oil Changed	Client Info		N/A	N/A	Changed
Sample Status			ABNORMAL	NORMAL	NORMAL

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

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<1	1	2
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	2	1	1
Manganese	ppm	ASTM D5185m	1	0	0
Magnesium	ppm	ASTM D5185m	7	5	6
Calcium	ppm	ASTM D5185m	1855	1759	1651
Phosphorus	ppm	ASTM D5185m	282	235	224
Zinc	ppm	ASTM D5185m	329	308	281
Sulfur	ppm	ASTM D5185m	3326	3179	2694

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >180	133	89	56
Sodium	ppm	ASTM D5185m >20	0	1	2
Potassium	ppm	ASTM D5185m >20	3	0	0

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	0
Nitration	Abs/cm	*ASTM D7624	6.2	6.0	5.7
Sulfation	Abs/.1mm	*ASTM D7415	24.5	22.3	19.3

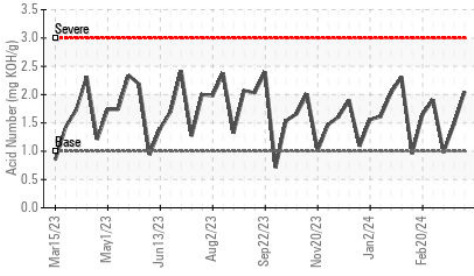
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	17.2	14.8	11.6
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	▲ 2.05	1.48	0.977
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	2.20	2.55	7.64

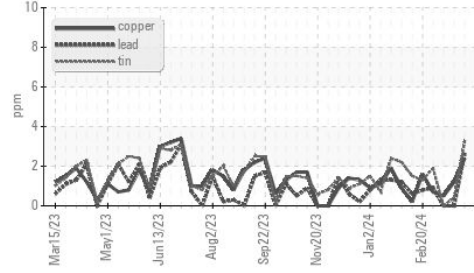


OIL ANALYSIS REPORT

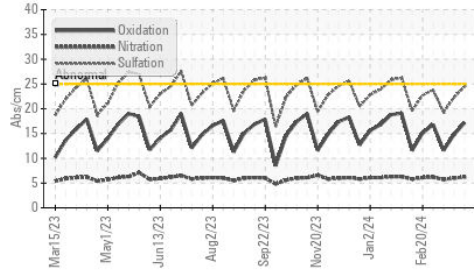
▲ Acid Number



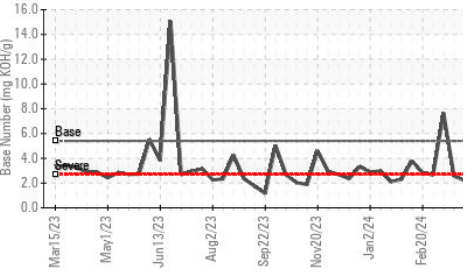
▲ Non-ferrous Metals



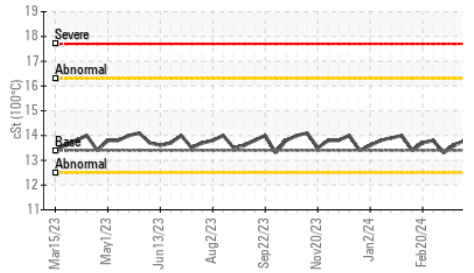
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

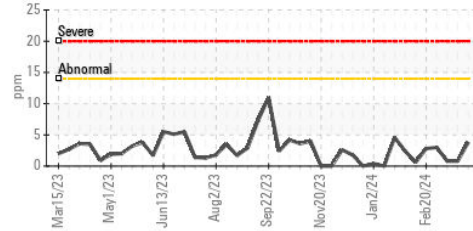


VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	LIGHT	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

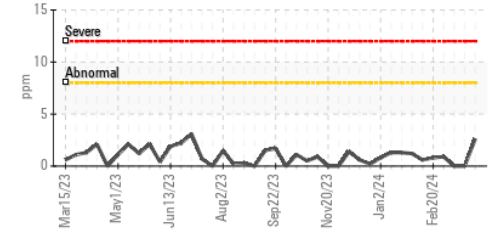
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.4	13.8	13.6	13.3

GRAPHS

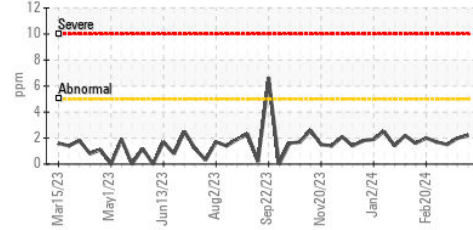
Iron (ppm)



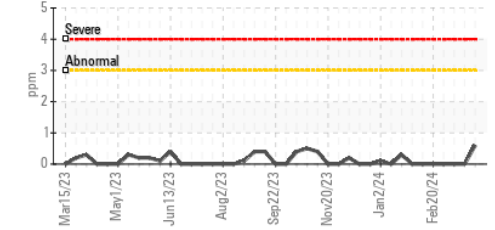
Lead (ppm)



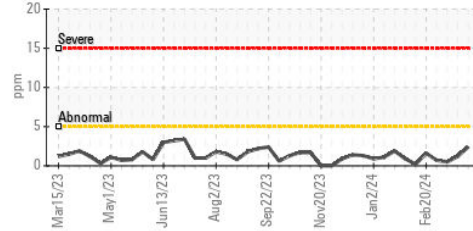
Aluminum (ppm)



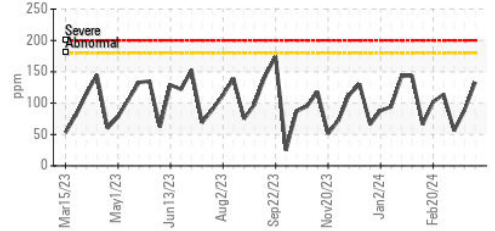
Chromium (ppm)



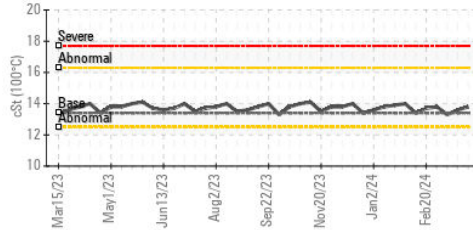
Copper (ppm)



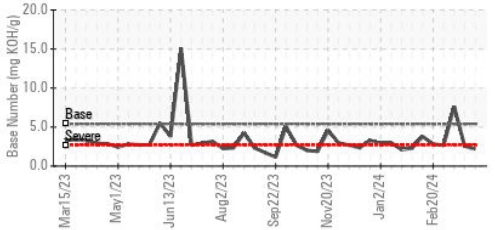
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : WC0905697

Lab Number : **06146059**

Unique Number : 10976137

Test Package : MOB 2

Received : 11 Apr 2024

Tested : 12 Apr 2024

Diagnosed : 15 Apr 2024 - 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

T:

F:

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)