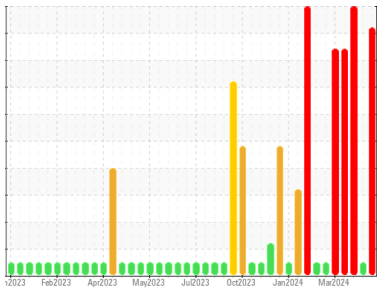
OIL ANALYSIS REPORT

Machine Id
WVTM03BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

Sample Rating Trend



WEAR

DIAGNOSIS

▲ Recommendation
We recommend that you drain the oil and perform a filter service on this component if not already done. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

▲ Wear
The iron level is severe.

Contamination
There is no indication of any contamination in the oil.

▲ Fluid Condition
The BN level is low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0895535**	WC0895563	WC0895564
Sample Date		Client Info		**11 Apr 2024**	02 Apr 2024	25 Mar 2024
Machine Age	hrs	Client Info		**34719**	34503	34319
Oil Age	hrs	Client Info		**400**	184	913
Oil Changed		Client Info		**Not Changd**	Not Changd	Changed
Sample Status				**SEVERE**	NORMAL	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Water		WC Method	>.11	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	▲ **22**	14	▲ 43
Chromium	ppm	ASTM D5185m	>4	**<1**	0	<1
Nickel	ppm	ASTM D5185m		**<1**	0	0
Titanium	ppm	ASTM D5185m		**0**	<1	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**2**	2	3
Lead	ppm	ASTM D5185m	>9	**0**	0	<1
Copper	ppm	ASTM D5185m	>6	**2**	1	2
Tin	ppm	ASTM D5185m	>4	**1**	<1	▲ 4
Vanadium	ppm	ASTM D5185m		**<1**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	3
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**1**	1	2
Manganese	ppm	ASTM D5185m		**<1**	<1	0
Magnesium	ppm	ASTM D5185m		**4**	5	7
Calcium	ppm	ASTM D5185m		**1642**	1672	1712
Phosphorus	ppm	ASTM D5185m		**227**	229	257
Zinc	ppm	ASTM D5185m		**253**	294	328
Sulfur	ppm	ASTM D5185m		**3830**	3599	4585

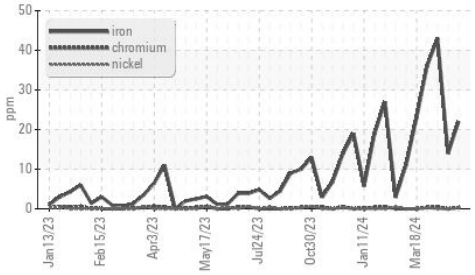
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	**128**	79	▲ 192
Sodium	ppm	ASTM D5185m	>21	**3**	2	6
Potassium	ppm	ASTM D5185m	>20	**0**	0	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0	0
Nitration	Abs/cm	*ASTM D7624		**5.0**	4.9	4.9
Sulfation	Abs/.1mm	*ASTM D7415		**23.6**	20.7	28.1

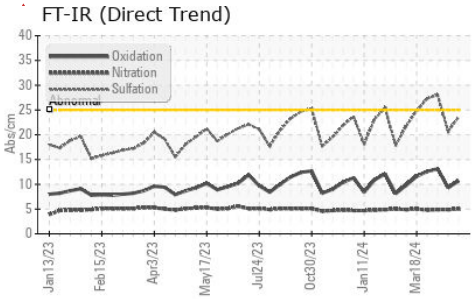
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		**10.7**	9.3	13.1
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	**1.76**	1.04	▲ 3.14
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	▲ **1.45**	2.40	▲ 0.87

OIL ANALYSIS REPORT

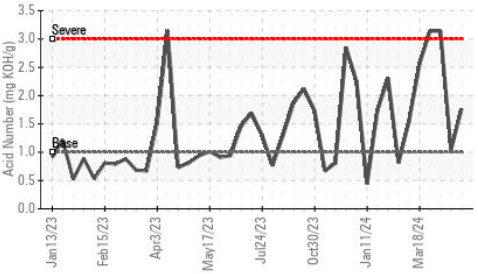
Ferrous Alloys



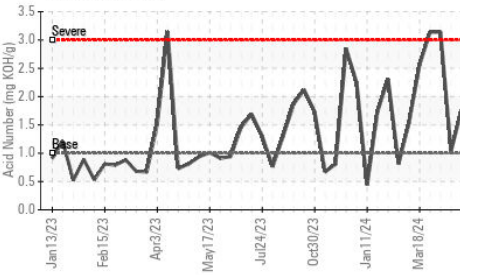
FT-IR (Direct Trend)



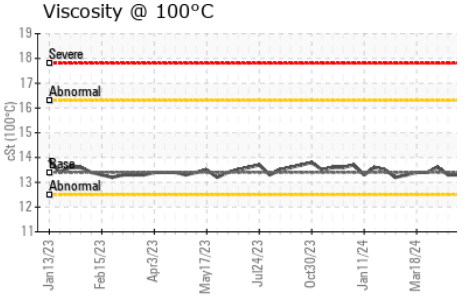
Acid Number



Acid Number



Viscosity @ 100°C

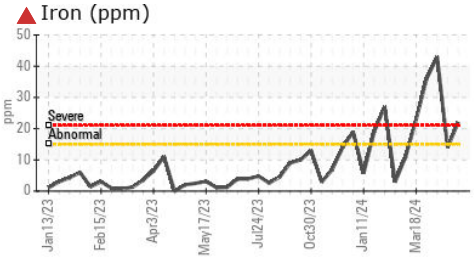


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>.11	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

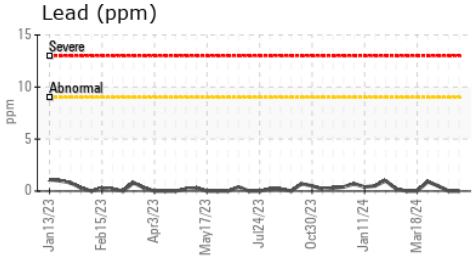
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	**13.3**	13.3	13.6

GRAPHS

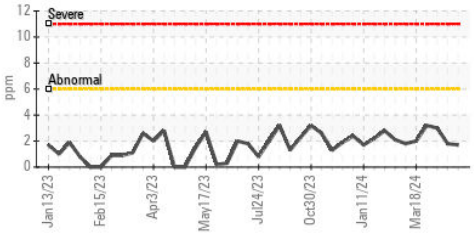
Iron (ppm)



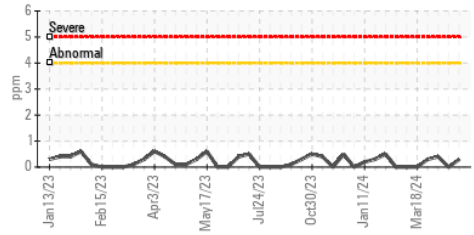
Lead (ppm)



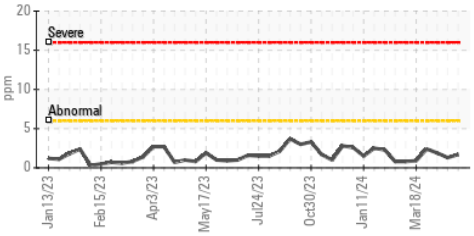
Aluminum (ppm)



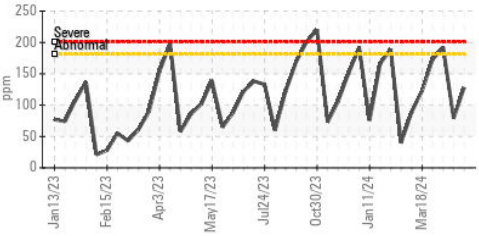
Chromium (ppm)



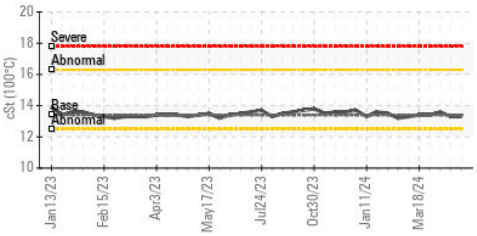
Copper (ppm)



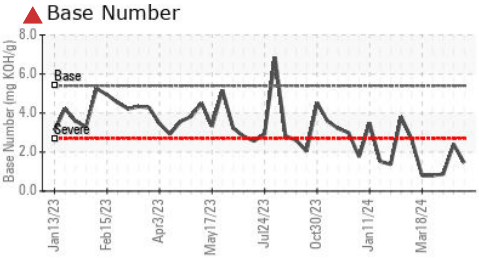
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0895535
Lab Number : 06148893
Unique Number : 10978971
Test Package : MOB 2

Received : 15 Apr 2024
Tested : 16 Apr 2024
Diagnosed : 17 Apr 2024 - Sean Felton

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-Watervliet
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Watervliet, MI
US 49098
Contact: Scott Eastman
scott.eastman@edlenergy.com
T:
F:

Report Id: EDLWAT [WUSCAR] 06148893 (Generated: 04/24/2024 08:51:22) Rev: 1

Submitted By: Scott Eastman