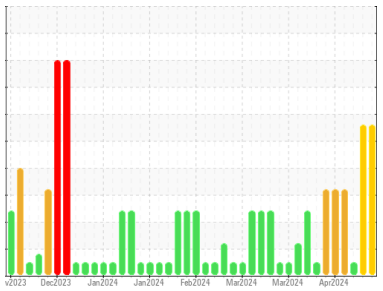
OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Machine Id
WVTM02BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

DIAGNOSIS

▲ Recommendation
Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

▲ Wear
The tin level is abnormal.

▲ Contamination
Elemental level of silicon (Si) above normal.

▲ Fluid Condition
The BN level is low. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0839353**	WC0839333	WC0839328
Sample Date		Client Info		**10 Jul 2024**	02 Jul 2024	06 May 2024
Machine Age	hrs	Client Info		**47035**	46849	45521
Oil Age	hrs	Client Info		**690**	505	210
Oil Changed		Client Info		**Changed**	Not Changd	Not Changd
Sample Status				**SEVERE**	ABNORMAL	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
PQ		ASTM D8184		**18**	19	---
Iron	ppm	ASTM D5185m	>14	**10**	▲ 12	2
Chromium	ppm	ASTM D5185m	>3	**<1**	1	<1
Nickel	ppm	ASTM D5185m		**0**	<1	0
Titanium	ppm	ASTM D5185m		**<1**	<1	0
Silver	ppm	ASTM D5185m		**0**	<1	0
Aluminum	ppm	ASTM D5185m	>5	**3**	3	2
Lead	ppm	ASTM D5185m	>8	**<1**	2	<1
Copper	ppm	ASTM D5185m	>5	**2**	3	<1
Tin	ppm	ASTM D5185m	>3	▲ **5**	▲ 5	2
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**29**	35	57
Barium	ppm	ASTM D5185m		**0**	0	<1
Molybdenum	ppm	ASTM D5185m		**7**	9	8
Manganese	ppm	ASTM D5185m		**0**	<1	<1
Magnesium	ppm	ASTM D5185m		**55**	63	47
Calcium	ppm	ASTM D5185m		**1691**	1683	1560
Phosphorus	ppm	ASTM D5185m		**422**	409	382
Zinc	ppm	ASTM D5185m		**622**	647	529
Sulfur	ppm	ASTM D5185m		**6383**	5089	5311

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>180	▲ **180**	▲ 193	75
Sodium	ppm	ASTM D5185m	>20	**<1**	0	0
Potassium	ppm	ASTM D5185m	>20	**<1**	2	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0
Nitration	Abs/cm	*ASTM D7624		**4.0**	4.1	3.6
Sulfation	Abs/.1mm	*ASTM D7415		**25.9**	26.1	21.7

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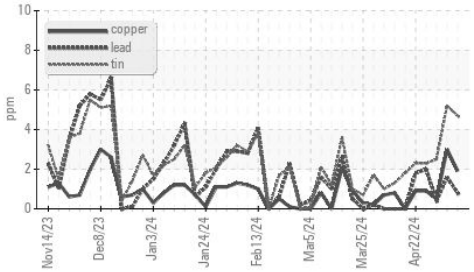
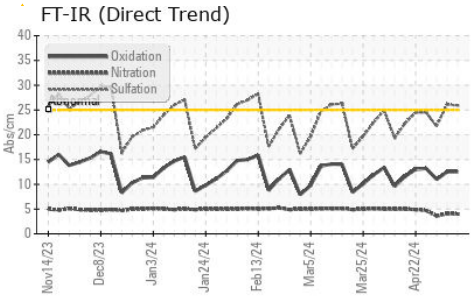
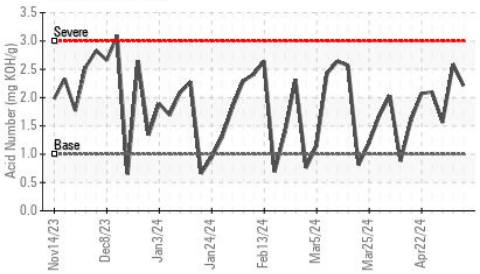
Non-ferrous Metals



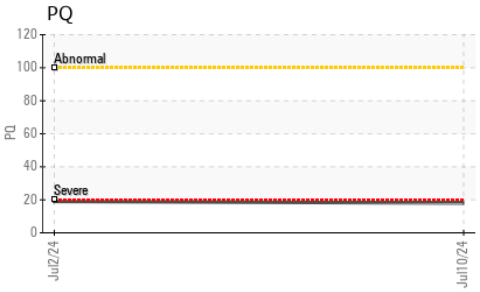
FT-IR (Direct Trend)



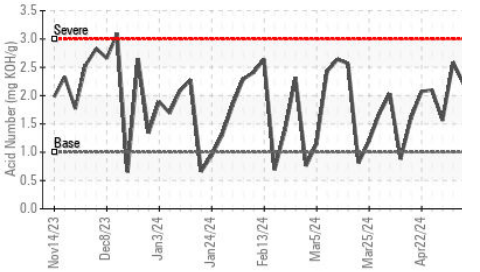
Acid Number



PQ



Acid Number



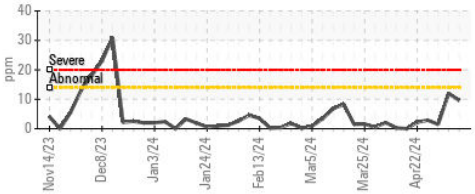
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		**12.5**	12.5	11.0
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	**2.21**	▲ 2.59	1.56
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	▲ **2.22**	▲ 2.39	3.41

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		**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

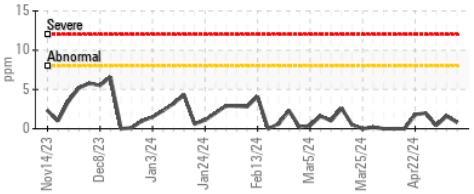
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.4	**14.1**	14.2	14.1

GRAPHS

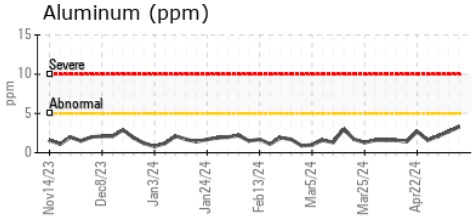
Iron (ppm)



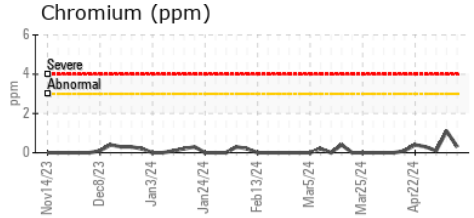
Lead (ppm)



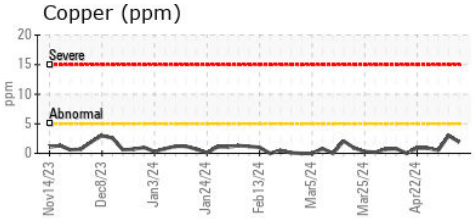
Aluminum (ppm)



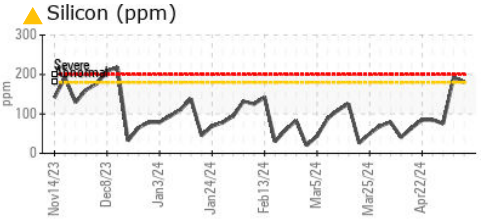
Chromium (ppm)



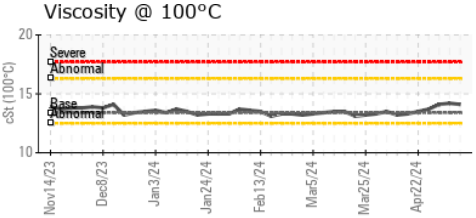
Copper (ppm)



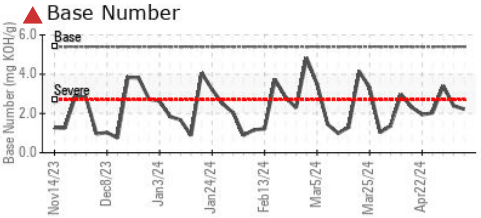
Silicon (ppm)



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0839353
Lab Number : 06235116
Unique Number : 11123950
Test Package : MOB 2 (Additional Tests: PQ)

Received : 12 Jul 2024
Tested : 15 Jul 2024
Diagnosed : 15 Jul 2024 - Sean Felton

Certificate L2367

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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