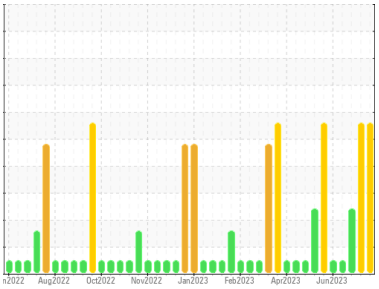
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
Coopersville CAT 5 CPVM05BE
Component
Biogas Engine
Fluid
CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

DIAGNOSIS

Recommendation
We recommend that you drain the oil and perform a filter service on this component if not already done. 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 result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0819400**	WC0819405	WC0819396
Sample Date		Client Info		**11 Jul 2023**	28 Jun 2023	19 Jun 2023
Machine Age	hrs	Client Info		**10063**	9751	9543
Oil Age	hrs	Client Info		**950**	638	430
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**SEVERE**	SEVERE	ABNORMAL

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	**5**	4	3
Chromium	ppm	ASTM D5185m	>4	**<1**	<1	0
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	**4**	3	1
Lead	ppm	ASTM D5185m	>9	**5**	3	3
Copper	ppm	ASTM D5185m	>14	**3**	2	3
Tin	ppm	ASTM D5185m	>4	▲ **13**	▲ 10	▲ 8
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**4**	5	6
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**3**	3	3
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**34**	38	36
Calcium	ppm	ASTM D5185m		**2119**	2131	1895
Phosphorus	ppm	ASTM D5185m		**310**	319	289
Zinc	ppm	ASTM D5185m		**394**	401	362
Sulfur	ppm	ASTM D5185m		**2450**	2558	2110

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	● **255**	● 224	▲ 183
Sodium	ppm	ASTM D5185m		**0**	<1	0
Potassium	ppm	ASTM D5185m	>20	**<1**	0	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.9**	7.1	6.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.5**	19.8	18.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.3**	15.1	14.2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	**1.98**	0.52	1.05
Base Number (BN)	mg KOH/g	ASTM D2896	4.5	**4.84**	4.91	5.31

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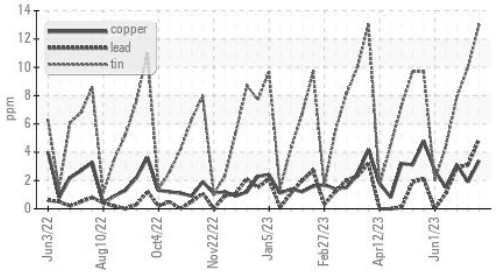
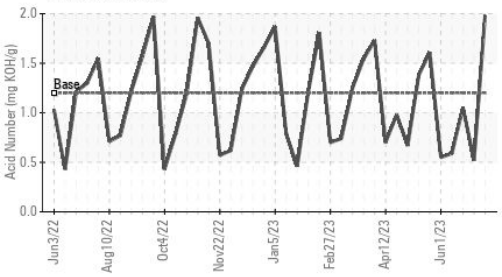
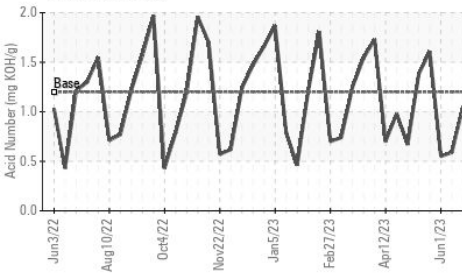
Non-ferrous Metals



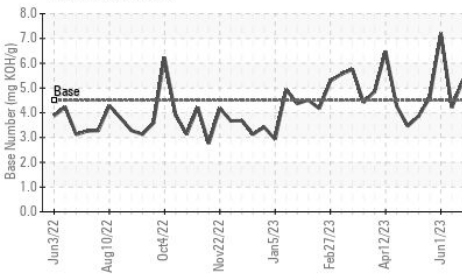
Acid Number



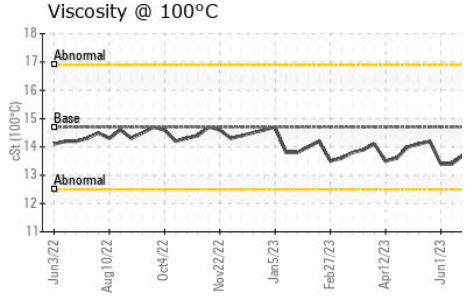
Acid Number



Base Number



Viscosity @ 100°C

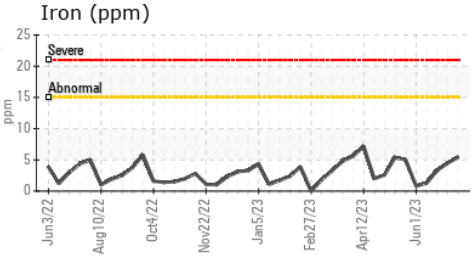


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

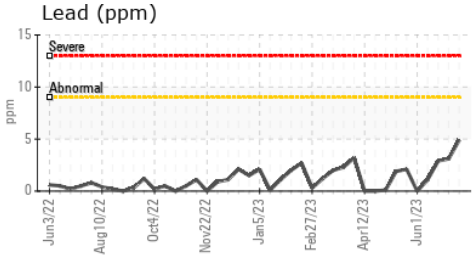
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.7	**14.3**	13.9	13.7

GRAPHS

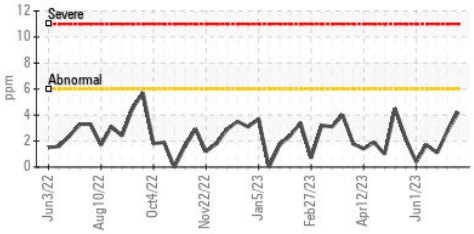
Iron (ppm)



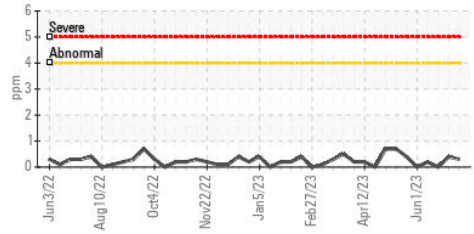
Lead (ppm)



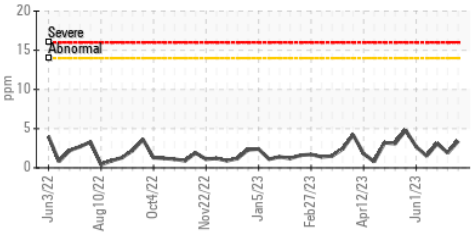
Aluminum (ppm)



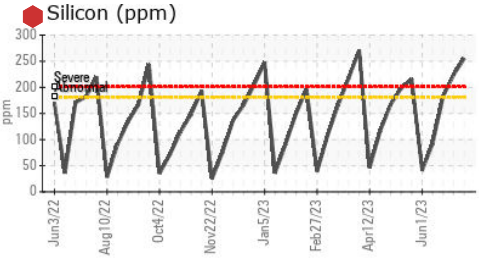
Chromium (ppm)



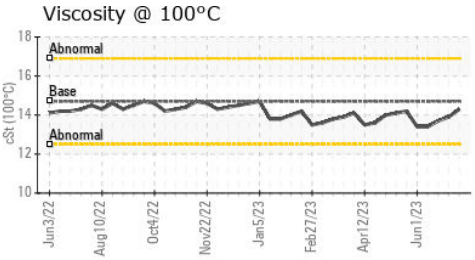
Copper (ppm)



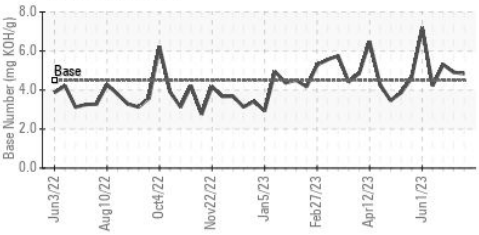
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0819400
Lab Number : 05900136
Unique Number : 10561492
Test Package : MOB 2

Received : 17 Jul 2023
Diagnosed : 19 Jul 2023
Diagnostician : Don Baldridge

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-Coopersville
Coopersville Powerstation, 15362 68th Avenue
Coopersville, MI
US 49404
Contact: Daniel Young
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T:
F:

Report Id: EDLCOO [WUSCAR] 05900136 (Generated: 07/24/2023 10:10:27) Rev: 1

Submitted By: Chad Conroy