

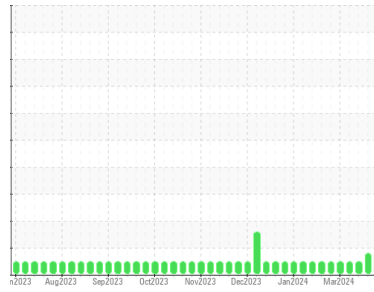


OIL ANALYSIS REPORT



Machine Id
HANM01BE (S/N 4EK00133)
 Component
Biogas Engine
 Fluid
CHEVRON HDAX 9500 GAS ENGINE OIL 40 (95 GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

The tin level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0898109	WC0898123	WC0898128
Sample Date	Client Info		03 Apr 2024	29 Mar 2024	19 Mar 2024
Machine Age	hrs	Client Info	69971	69851	69611
Oil Age	hrs	Client Info	980	860	620
Oil Changed	Client Info		Not Chngd	Not Chngd	Not Chngd
Sample Status			ABNORMAL	ABNORMAL	NORMAL

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	2	<1	2
Chromium	ppm	ASTM D5185m >4	0	0	<1
Nickel	ppm	ASTM D5185m	0	0	0
Titanium	ppm	ASTM D5185m	0	0	<1
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >6	2	2	3
Lead	ppm	ASTM D5185m >9	<1	2	1
Copper	ppm	ASTM D5185m >6	1	<1	1
Tin	ppm	ASTM D5185m >4	▲ 5	▲ 5	5
Vanadium	ppm	ASTM D5185m	0	0	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	13	10	8
Barium	ppm	ASTM D5185m	0	0	1
Molybdenum	ppm	ASTM D5185m	3	<1	3
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	19	11	15
Calcium	ppm	ASTM D5185m	2096	2098	2119
Phosphorus	ppm	ASTM D5185m	329	319	316
Zinc	ppm	ASTM D5185m	412	406	415
Sulfur	ppm	ASTM D5185m	2981	2914	2803

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >181	142	141	124
Sodium	ppm	ASTM D5185m >21	1	2	0
Potassium	ppm	ASTM D5185m >20	<1	<1	3

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	7.8	7.7	7.4
Sulfation	Abs/.1mm	*ASTM D7415	23.3	22.8	21.6

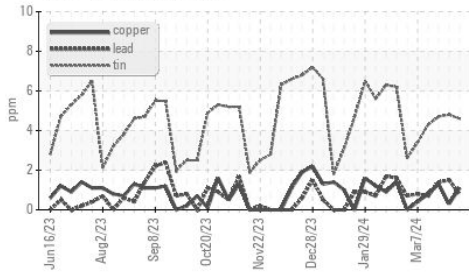
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	19.2	18.5	16.8
Acid Number (AN)	mg KOH/g	ASTM D8045 1.0	1.84	2.04	1.72
Base Number (BN)	mg KOH/g	ASTM D2896 5.4	3.29	3.71	3.74

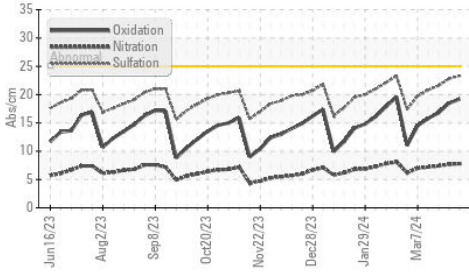


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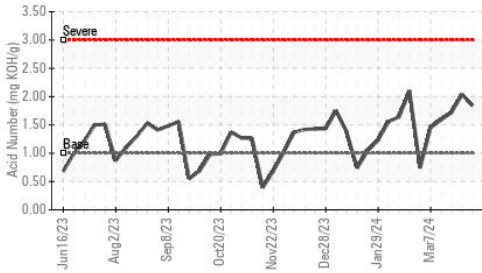
Non-ferrous Metals



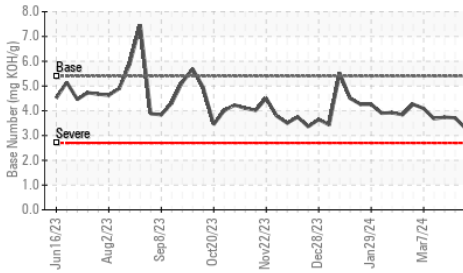
FT-IR (Direct Trend)



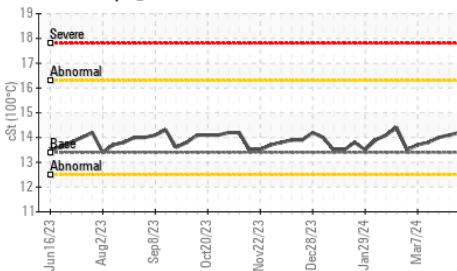
Acid Number



Base Number



Viscosity @ 100°C

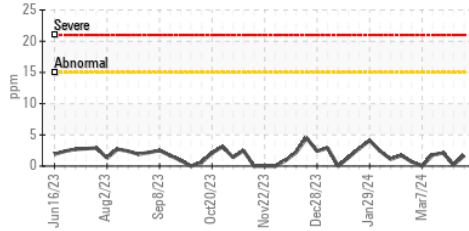


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

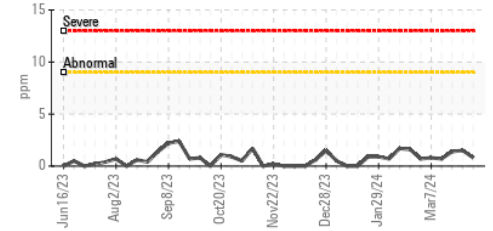
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	13.4	14.2	14.1	14.0

GRAPHS

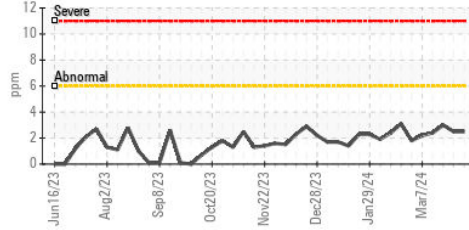
Iron (ppm)



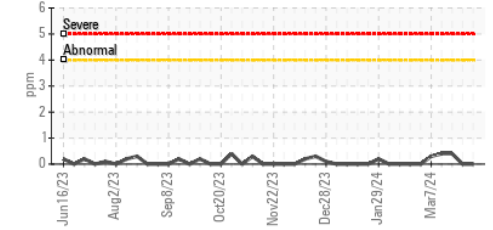
Lead (ppm)



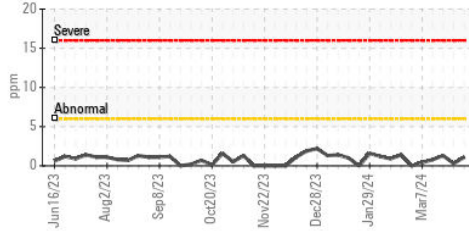
Aluminum (ppm)



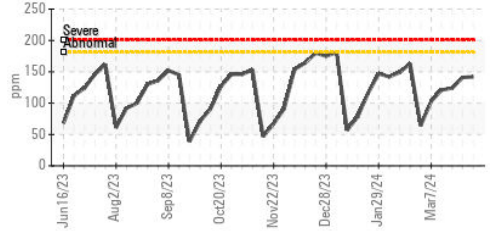
Chromium (ppm)



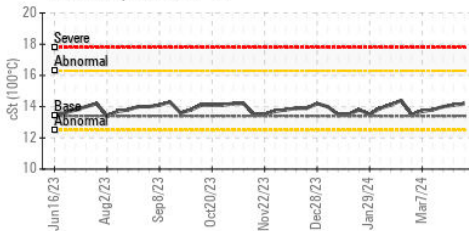
Copper (ppm)



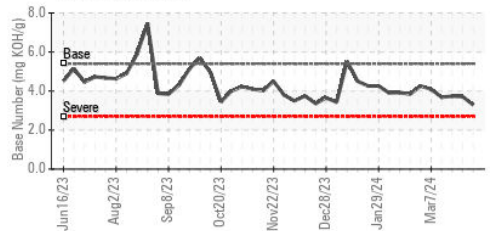
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : WC0898109

Lab Number : 06140096

Unique Number : 10964904

Test Package : MOB 2

Received : 05 Apr 2024

Tested : 08 Apr 2024

Diagnosed : 08 Apr 2024 - Don Baldrige

EDL NA Recips-Hancock County

HANCOCK COUNTY POWER STATION, 3574 TOWNSHIP ROAD 142

FINDLAY, OH

US 45840

Contact: TIM CUSICK

tim.cusick@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)