

OIL ANALYSIS REPORT



NORMAL

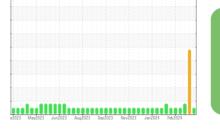


Machine Id Grand Blanc CAT 2 GBLM02BE

Biogas Engine

CHEVRON HDAX 9500 GAS ENGINE OIL 40 (--- GAL)

SAMPLE INFORMATION method





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Recommendation

Resample at the next service interval to monitor.

Wear

All 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.

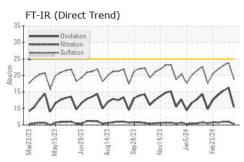
Sample Number		Client Info		WC0905739	WC0905736	WC0905730
Sample Date		Client Info		03 Apr 2024	19 Mar 2024	13 Mar 2024
Machine Age	hrs	Client Info		11989	11721	11584
Oil Age	hrs	Client Info		0	933	815
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				NORMAL	ABNORMAL	ABNORMAL
CONTAMINATION	٧	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	6	4
Chromium	ppm	ASTM D5185m	>4	0	<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	>6	2	3	3
Lead	ppm	ASTM D5185m	>9	2	1 3	1 0
Copper	ppm	ASTM D5185m	>6	2	5	4
Tin	ppm	ASTM D5185m	>4	1	4	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		7	4	4
Barium	ppm	ASTM D5185m		0	2	0
Molybdenum	ppm	ASTM D5185m		3	3	3
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m		10	16	16
Calcium	ppm	ASTM D5185m		1651	1959	1816
Phosphorus	ppm	ASTM D5185m		235	272	284
Zinc	ppm	ASTM D5185m		309	375	367
Sulfur	ppm	ASTM D5185m		2717	3270	3122
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	108	196	177
Sodium	ppm	ASTM D5185m	>21	1	0	0
Potassium	ppm	ASTM D5185m	>20	0	3	1
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624		5.3	6.0	6.0
Sulfation	Abs/.1mm	*ASTM D7415		18.9	23.8	23.0
FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		10.4	16.3	15.4
Acid Number (AN)	mg KOH/g	ASTM D8045	1.0	0.97	A 3.496	2.11
Base Number (BN)	mg KOH/g	ASTM D2896	5.4	3.42	2 .60	2.76
2:57:00) Rev: 1					Submitted By:	DARREL HILTZ

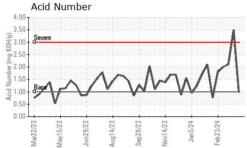
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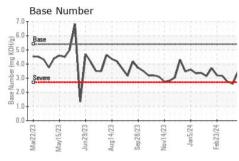
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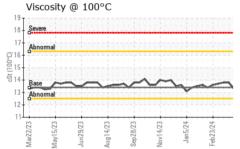


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VISUAL		method	limit/base	current	history	1 h	
Vhite Metal	scalar	*Visual	NONE	NONE	NONE		DNE
ellow Metal	scalar	*Visual	NONE	NONE	NONE		DNE
Precipitate	scalar	*Visual	NONE	NONE	NONE		ONE
Silt	scalar	*Visual	NONE	NONE	NONE		ONE
Debris Sand/Dirt	scalar	*Visual *Visual	NONE	NONE NONE	NONE NONE		ONE
ppearance	scalar scalar	*Visual	NORML	NORML	NORML		
)dor	scalar	*Visual	NORML	NORML	NORML		DRM
Emulsified Water	scalar	*Visual	>.11	NEG	NEG	NE	
ree Water	scalar	*Visual		NEG	NEG	NE	
FLUID PROPER	TIES	method	limit/base	current	history	1 h	istor
/isc @ 100°C	cSt	ASTM D445	13.4	13.3	13.8	13	.8
GRAPHS							
Iron (ppm)			15	Lead (ppm)			1111
Abnormal			10	T			A
			udd 5			1	11
~~~~	M	nn	1	.~		JU	V
Mar22/23	Sep 28/23	Nov14/23	0	Mar22/23 May15/23 Jun29/23	Aug 14/23 Sep 28/23	Vov14/23 -	Feb23/24 -
arí n2		5 6 9		1 12			
	-	No.	3	Man Man Jur	Aug	Nov	Feb2
Aluminum (ppm)	-	No. L		Chromium (pp	10790 C 00000	Nov	Feb2
	-		6	Chromium (pp	10790 C 00000	Nov	Feb2
Aluminum (ppm)	-		6 5 4	Chromium (pp	10790 C 00000	vov	Feb2
Aluminum (ppm)	-		6 5 4 5	Chromium (pp	10790 C 00000	Nov	Febž
Aluminum (ppm)	-		6 5 4	Chromium (pp	10790 C 00000	non	Febž
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 5 4 6 3 2 1 1 0	Chromium (pp	om)	2	
Aluminum (ppm)	~~~~	Nov14/23 Mo	6 5 4 6 3 2 1 1 0	Chromium (pp	10790 C 00000	vov 4/23	Feb23/24
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 5 4 4 4 6 6 3 2 1 0	Chromium (pr	om)	2	
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 5 4 4 4 4 3 2 1 0 0	Chromium (pr	om)	2	
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 5 4 4 4 4 3 2 1 0 250 200	Chromium (pp Severe Abnormal E2225µVeW Silicon (ppm)	om)	2	
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6 5 4 4 4 4 3 2 1 0 0	Chromium (pp Severe Abnormal E2225µVeW Silicon (ppm)	om)	2	
Aluminum (ppm)	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	250 200 <u>E</u> 150 50	Chromium (pr	om)	2	
Aluminum (ppm)		Nov14/23 Jan5/24 Fear-27/2/2	250 200 100 100 100 100 100 100 100 100 10	Chromium (pp Severe Abnormal E27251/feW Silicon (ppm) Severe Source Severe Silicon (ppm)	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24
Aluminum (ppm)	Sep 28/23	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	250 200 100 100 100 100 100 100 100 100 10	Chromium (pr Severe Abnormal EZISTRW Silicon (ppm) Silicon (ppm) CZISTRW CZISTRW CZISTRW CZISTRW CZISTRW	om)	2	
Aluminum (ppm)	Sep 28/23	Nov14/23 Jan5/24 Fear-27/2/2	250 200 E 150 50 0	Chromium (pr Severe Abnormal EZ752reW Silicon (ppm) Severe EZ751/keW Silicon (ppm) EZ751/keW EZ751/keW EZ762reW EZ762reW	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24
Aluminum (ppm)	Sep 28/23	Nov14/23 Jan5/24 Fear-27/2/2		Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24
Aluminum (ppm)	Sep 28/23	Nov14/23 Jan5/24 Fear-27/2/2		Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24
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Aluminum (ppm)	Sep 28/23	Nov14/23 Jan5/24 Fear-27/2/2		Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24
Aluminum (ppm)		Mov14/23 + / Mov14/23 + / Mov14/23 + / Jan5/24 + / Jan	6 5 4 4 4 4 4 4 4 3 2 1 0 250 200 200 150 100 50 0 0 150 0 0 0 150 0 0 0 0	Chromium (pr Severe Abnormal EZZZZEW Silicon (ppm) Severe Severe Silicon (ppm) EZZZZEW Base Number Base Number	Aug14/23 Sep28/23 Aug14/23 Sep28/23 (uc	Nov14/23 + 2/2 Mov14/23 + 1/2 Mov14/	Feb23/24 C Feb23/24
Aluminum (ppm)		Nov14/23 Jan5/24 Fear-27/2/2	6 5 4 4 4 4 4 4 4 3 2 1 0 250 200 200 150 100 50 0 0 150 0 0 0 150 0 0 0 0	Chromium (pr Severe Abnormal EZZ52reW Silicon (ppm) Severe EZZ51/reW Silicon (ppm) EZZ51/reW EZZ51/reW Base Number	2m) 2m014/23 2ep28/23 2ep28/23	Nov14/23	Feb23/24

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 **EDL NA Recips-Grand Blanc** Sample No. : WC0905739 Grand Blanc Powerstation, 2361 West Grand Blanc Road Received : 04 Apr 2024 Lab Number : 06138727 Tested : 05 Apr 2024 Grand Blanc, MI Unique Number : 10963535 Diagnosed : 06 Apr 2024 - Don Baldridge US 48439 Test Package : MOB 2 Contact: Tony Saint Marie Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. tony.saintmarie@edlenergy.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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