

OIL ANALYSIS REPORT

Sample Rating Trend







Ma S Cor Bi Flui CH

Machine Id SJNM01BE Component

Biogas Engine

CHEVRON HDAX 6500 LFG GAS ENGINE OIL (--- GAL)

DIAGNOSIS

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

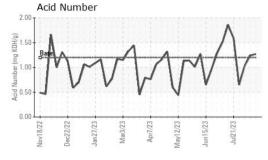
Fluid Condition

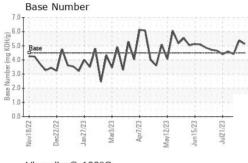
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

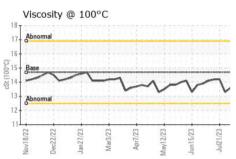
Sample Number	CAS LITAINE OIL (WAL)	v2022 Dec20	22 Jan2023 Mar2023	Apr2023 May2023 Jun2023	Jul2023	
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 66139 65973 65805 Oil Age hrs Client Info 670 504 491 Oil Changed Client Info Not Changd Not Changd Not Changd Sample Status Normal NORMAL NORMAL CONTAMINATION method Immit/base current history1 history1 Fuel WC Method 4.0 <1.0	Sample Number		Client Info		WC0764419	WC0764409	WC0764410
Oil Age hrs Client Info 670 504 491 Oil Changed Sample Status Client Info Not Changd NORMAL 1.1	Sample Date		Client Info		18 Aug 2023	11 Aug 2023	04 Aug 2023
Oil Changed Cilient Info Not Changd Not Changed NORMAL	Machine Age	hrs	Client Info		66139	65973	65805
NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 hi	Oil Age	hrs	Client Info		670	504	491
CONTAMINATION method limit/base current history1 history1 Fuel WC Method v4.0 <1.0	Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
WEAR METALS	CONTAMINATIO	V	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >4 <1 0 0 Nickel ppm ASTM D5185m >2 <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >4 <1 0 0 Nickel ppm ASTM D5185m >2 <1	Iron	mag	ASTM D5185m	>15	2	1	0
Nickel ppm ASTM D5185m >2 <1 0 <1 Titanium ppm ASTM D5185m 0 0 0 Silver ppm ASTM D5185m >5 0 0 <1	Chromium		ASTM D5185m	>4	<1	0	0
Titanium ppm ASTM D5185m 0 0 0 0 Silver ppm ASTM D5185m >5 0 0 <1				>2			<1
Silver							
Aluminum				>5			<1
Lead	Aluminum				<1		
Copper ppm ASTM D5185m >6 2 1 2 Tin ppm ASTM D5185m >4 3 2 2 Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 8 6 8 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 10 9 10 Manganese ppm ASTM D5185m 21 <1	Lead			>9		5	4
Tin	Copper		ASTM D5185m	>6			2
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 8 6 8 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 10 9 10 Manganese ppm ASTM D5185m 21 <1 <1 <1 Magnesium ppm ASTM D5185m 2006 2028 2110 Phosphorus ppm ASTM D5185m 303 319 314 Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 155<				>4	3	2	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 8 6 8 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 10 9 10 Manganese ppm ASTM D5185m 21 <1	Vanadium		ASTM D5185m				0
Boron	Cadmium				0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 10 9 10 Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 23 22 23 Calcium ppm ASTM D5185m 2006 2028 2110 Phosphorus ppm ASTM D5185m 303 319 314 Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1 0 0 Potassium ppm ASTM D5185m 20 3 2 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844	Boron	ppm	ASTM D5185m		8	6	8
Manganese ppm ASTM D5185m <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td>Barium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <th>0</th> <td>0</td> <td>0</td>	Barium	ppm	ASTM D5185m		0	0	0
Magnesium ppm ASTM D5185m 23 22 23 Calcium ppm ASTM D5185m 2006 2028 2110 Phosphorus ppm ASTM D5185m 303 319 314 Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 3 2 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/.1mm *ASTM D7845 >30 21.4 20.4 19.2 FLUID DEGRADATION meth	Molybdenum	ppm	ASTM D5185m		10	9	10
Calcium ppm ASTM D5185m 2006 2028 2110 Phosphorus ppm ASTM D5185m 303 319 314 Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m >20 3 2 3 INFRA-RED method limit/base current history1 history1 Soot % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history2 Ox	Manganese	ppm	ASTM D5185m		<1	<1	<1
Phosphorus ppm ASTM D5185m 303 319 314 Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m >0 <1	Magnesium	ppm	ASTM D5185m		23	22	23
Zinc ppm ASTM D5185m 384 381 398 Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1	Calcium	ppm	ASTM D5185m		2006	2028	2110
Sulfur ppm ASTM D5185m 2240 2593 2680 CONTAMINANTS method limit/base current history1 history3 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1	Phosphorus	ppm	ASTM D5185m		303	319	314
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1	Zinc	ppm	ASTM D5185m		384	381	398
Silicon ppm ASTM D5185m >181 155 135 120 Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 3 2 3 INFRA-RED method limit/base current history1 history1 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Sulfur	ppm	ASTM D5185m		2240	2593	2680
Sodium ppm ASTM D5185m 0 <1 0 Potassium ppm ASTM D5185m >20 3 2 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 3 2 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Silicon	ppm		>181			
INFRA-RED	Sodium	ppm	ASTM D5185m		0		0
Soot % % *ASTM D7844 0.1 0 0 Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Potassium	ppm	ASTM D5185m	>20	3	2	3
Nitration Abs/cm *ASTM D7624 >20 7.7 7.3 6.8 Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 21.4 20.4 19.2 FLUID DEGRADATION method limit/base current history1 history3 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Soot %	%	*ASTM D7844		0.1	0	0
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Nitration	Abs/cm	*ASTM D7624	>20	7.7	7.3	6.8
Oxidation Abs/.1mm *ASTM D7414 >25 16.5 14.7 13.0 Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.4	20.4	19.2
Acid Number (AN) mg KOH/g ASTM D8045 1.2 1.27 1.24 1.03	FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	16.5	14.7	13.0
Base Number (BN) mg KOH/g ASTM D2896 4.5 5.13 5.37 4.41		1/011/	4 OTL 4 DOG 45				
	Acid Number (AN)	mg KOH/g	ASTM D8045	1.2	1.27	1.24	1.03



OIL ANALYSIS REPORT





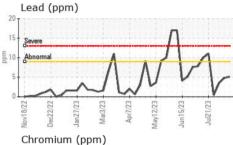


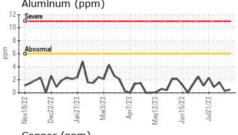
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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

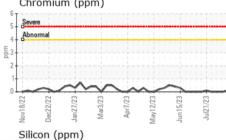
FLUID FROFER	THES	memou			HISTOLAL	HISTOLYZ
Visc @ 100°C	cSt	ASTM D445	14.7	14.8	13.7	13.6

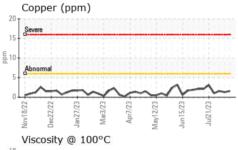
Iroi 25 T	n (ppi	m)						
Seve	re							
Abne	ormal							111
10								
5								
ما	~	\sim	\sim	\	~~	\sim	\sim	
Nov18/22	ec22/23	Jan 27/23	Mar3/23	Apr7/23	/12/23	15/23	Jul21/23	
Nov	Dec	Jar	Σ	Ø	May12	Jun	η	
Alu	minur	m (pp	m)					

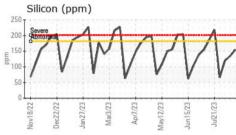
GRAPHS

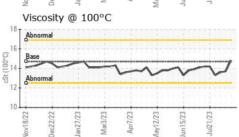


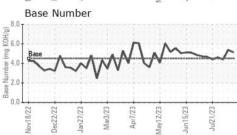
















Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : MOB 2

: WC0764419 : 05931661 : 10616932

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

: 22 Aug 2023 : 24 Aug 2023 Diagnostician : Don Baldridge **EDL NA Recips-South Jordan**

South Jordan Powerstation, 10473 S. Bacchus Hwy. South Jordan, UT US 84095

Contact: Aaron Klein

aaron.klein@edlenergy.com

T:

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)

F: