

OIL ANALYSIS REPORT

[42932426] 9486

Component **Diesel Engine**

CHEVRON DELO 400 XLE 10W30 (--- GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Wear

Iron ppm levels are abnormal. Cylinder, crank, or cam shaft wear is indicated.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION method limit/base current history1 history2 Sample Number Client Info WC0853067 WC0853022 28 Oct 2023 29 Jan 2023 Sample Date Client Info 14 Jan 2024 28 Oct 2023 29 Jan 2023 Machine Age kms Client Info 0 0 0 Oil Age kms Client Info Not Changd Not Changd ASMORMAL Oil Changed Client Info Not Changd Not Changd ASMORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 WEAR METALS method limit/base current history1 history2 Value ppm ASTM Dilision >20 6 1 1 1 WEAR METALS method limit/base current history1<			Vov2019 Ap	r2020 Jan2021 Sep	2021 Jan 2022 Oct2022	Oct2023	
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age kms Client Info 354559 345412 317708 Oil Age kms Client Info 0 0 0 0 Oil Changed Client Info Not Changd Not Changed Not Changed ABNORMAL Sample Status method Imitibase current historyt history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM DS188/m >0 Iron ppm ASTM DS188/m >20 6 1 1 Iron ppm ASTM DS188/m >20 6 1 1 Nickel ppm ASTM DS188/m >20 6 1 1 Nickel ppm ASTM DS188/m >20 14 3 6 Lead ppm ASTM DS188/m >20 14 3 6 <	Sample Number		Client Info		WC0853067	WC0853202	WC0702901
Oil Age kms Client Info Not Changd Not Changd Changed Condition Changed Not Changed Changed Not Changed Changed Contamily Changed Changed Changed Not Changed Changed Not Changed Changed Changed Changed ABNORMAL CONTAMINATION method limil/base current history1 history2 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limil/base current history1 history2 PQ ASTM D5184" 0	Sample Date		Client Info		14 Jan 2024	28 Oct 2023	29 Jan 2023
Oil Changed Sample Status Client Info Not Changd SEVERE Not Changd ABNORMAL Changed ABNORMAL CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D5185(m) >90 173 29 27 Chromium ppm ASTM D5185(m) >90 173 29 27 Chromium ppm ASTM D5185(m) >20 6 1 1 Nickel ppm ASTM D5185(m) >20 6 1 1 Silver ppm ASTM D5185(m) >20 14 3 6 Lead ppm ASTM D5185(m) >20 14 3 6 Lead ppm ASTM D5185(m) >20 5 6 7 Copper ppm ASTM D5185(m) 0 0 </th <th>Machine Age</th> <th>kms</th> <th>Client Info</th> <th></th> <th>354559</th> <th>345412</th> <th>317708</th>	Machine Age	kms	Client Info		354559	345412	317708
Sample Status	Oil Age	kms	Client Info		0	0	0
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Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D6185m >90 AT33 29 27 Chromium ppm ASTM D5185m >20 6 1 1 Nickel ppm ASTM D5185m >20 6 1 1 Nickel ppm ASTM D5185m >20 14 3 6 Silver ppm ASTM D5185m >20 14 3 6 Aluminum ppm ASTM D5185m >20 14 3 6 7 Lead ppm ASTM D5185m >30 6 2 2 2 Copper ppm ASTM D5185m >30 6 2 2 2 Tin ppm ASTM D5185m 0 0 0 <1	Sample Status				SEVERE	NORMAL	ABNORMAL
Glycol WC Method NEG NEG NEG WEAR METALS method limil/base current history1 history2 PQ ASTM D8184* 0 Iron ppm ASTM D5185(m) >90 A 173 29 27 Chromium ppm ASTM D5185(m) >20 6 1 1 Nickel ppm ASTM D5185(m) >2 <1	CONTAMINATION		method	limit/base	current	history1	history2
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PQ	Glycol		WC Method		NEG	NEG	NEG
Iron	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185(m) >20 6 1 1 Nickel ppm ASTM D5185(m) >2 <1	PQ		ASTM D8184*		0		
Nickel	Iron	ppm	ASTM D5185(m)	>90	<u> </u>	29	27
Nickel	Chromium	ppm	ASTM D5185(m)	>20	6	1	1
Silver ppm ASTM D5185(m) >2 <1 <1 0 Aluminum ppm ASTM D5185(m) >20 14 3 6 Lead ppm ASTM D5185(m) >40 5 6 7 Copper ppm ASTM D5185(m) >330 6 2 2 Tin ppm ASTM D5185(m) 15 2 <1 <1 Antimony ppm ASTM D5185(m) 0 0 <1 Vanadium ppm ASTM D5185(m) 0 0 0 <1 Vanadium ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 7 3 67 Molybdenum ppm ASTM D5185(m) 7 3 67 <	Nickel	ppm		>2	<1	0	<1
Aluminum ppm ASTM D5185(m) >20 14 3 6 Lead ppm ASTM D5185(m) >40 5 6 7 Copper ppm ASTM D5185(m) >40 5 6 7 Copper ppm ASTM D5185(m) >15 2 <1	Titanium	ppm	ASTM D5185(m)	>2	0	0	<1
Lead ppm ASTM D5185(m) >40 5 6 7 Copper ppm ASTM D5185(m) >330 6 2 2 Tin ppm ASTM D5185(m) >15 2 <1 <1 Antimony ppm ASTM D5185(m) 0 0 <1 Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 23 29 27 Boron ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Magnesium ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 1282 1353 <th>Silver</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>>2</th> <th><1</th> <th><1</th> <th>0</th>	Silver	ppm	ASTM D5185(m)	>2	<1	<1	0
Copper ppm ASTM D5185(m) >330 6 2 2 Tin ppm ASTM D5185(m) >15 2 <1 <1 Antimony ppm ASTM D5185(m) 0 0 <1 Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Magnesium ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 650 677 <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>>20</th> <th>14</th> <th>3</th> <th>6</th>	Aluminum	ppm	ASTM D5185(m)	>20	14	3	6
Tin ppm ASTM D5185(m) >15 2 <1	Lead	ppm	ASTM D5185(m)	>40	5	6	7
Antimony ppm ASTM D5185(m) 0 0 <1	Copper	ppm	ASTM D5185(m)	>330	6	2	2
Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 Boron ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current	Tin	ppm	ASTM D5185(m)	>15	2	<1	<1
Beryllium	Antimony	ppm	ASTM D5185(m)		0	0	<1
Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 1282 1353 2039 Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base c	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 1282 1353 2039 Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron ppm ASTM D5185(m) 23 29 27 Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium ppm ASTM D5185(m) 0 0 0 Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1 Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 1282 1353 2039 Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0 3 INFRA-RED method	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 7 3 67 Manganese ppm ASTM D5185(m) 2 0 <1	Boron	ppm	ASTM D5185(m)		23	29	27
Manganese ppm ASTM D5185(m) 2 0 <1	Barium	ppm	ASTM D5185(m)		0	0	0
Magnesium ppm ASTM D5185(m) 670 735 222 Calcium ppm ASTM D5185(m) 1282 1353 2039 Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1	Molybdenum	ppm	ASTM D5185(m)		7	3	67
Calcium ppm ASTM D5185(m) 1282 1353 2039 Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 9 5 6 Sodium ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0 3 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7624* >6 1.4 0.4 0.2	Manganese	ppm	ASTM D5185(m)		2	0	<1
Phosphorus ppm ASTM D5185(m) 650 677 1028 Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1	Magnesium	ppm	ASTM D5185(m)		670	735	222
Zinc ppm ASTM D5185(m) 741 767 1121 Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1	Calcium	ppm	ASTM D5185(m)		1282	1353	2039
Sulfur ppm ASTM D5185(m) 2354 2429 2924 Lithium ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)		650	677	1028
Lithium ppm ASTM D5185(m) <1	Zinc	ppm	ASTM D5185(m)		741	767	1121
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 9 5 6 Sodium ppm ASTM D5185(m) 4 3 3 Potassium ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0 △ 3 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 1.4 0.4 0.2 Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2	Sulfur	ppm	ASTM D5185(m)		2354	2429	2924
Silicon ppm ASTM D5185(m) >25 9 5 6 Sodium ppm ASTM D5185(m) 4 3 3 Potassium ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
Sodium ppm ASTM D5185(m) 4 3 3 Potassium ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0 △ 3 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 1.4 0.4 0.2 Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185(m) >20 23 3 9 Fuel % ASTM D7593* >3.0 6.8 <1.0	Silicon	ppm	ASTM D5185(m)	>25	9	5	6
Fuel % ASTM D7593* >3.0 € 6.8 <1.0		ppm	ASTM D5185(m)		4	3	3
INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >6 1.4 0.4 0.2 Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2			1 /				
Soot % % ASTM D7844* >6 1.4 0.4 0.2 Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2	Fuel	%	ASTM D7593*	>3.0	6.8	<1.0	A 3
Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm ASTM D7624* >20 22.7 11.3 12.2	Soot %	%	ASTM D7844*	>6	1.4	0.4	0.2



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited

Laboratory Sample No. Lab Number Unique Number

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : 02609180

: WC0853067 : 5710266

Recieved Diagnosed

: 17 Jan 2024 : 19 Jan 2024 Diagnostician : Kevin Marson

Test Package : MOB 1 (Additional Tests: FUELDILUTION, PercentFuel, PQ)

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

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