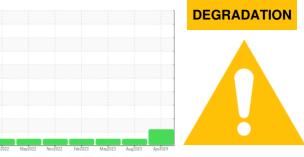


OIL ANALYSIS REPORT



Machine Id

1675 Component

Component Diesel Engine Fluid

CHEVRON DELO 400 SDE SAE 15W40 (--- GAL)

DIAGNOSIS

A Recommendation

Oil and filter change at the time of sampling has been noted. 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 level is low. The oil is no longer serviceable.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0859264	PCA0085452	PCA0085437
Sample Date		Client Info		23 Apr 2024	21 Aug 2023	22 May 2023
Machine Age	mls	Client Info		388199	367818	343757
Oil Age	mls	Client Info		0	343757	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15	8	9
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	1	0	<1
Titanium	ppm	ASTM D5185m	- 1	<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	10	4	3
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm		>330	3	2	3
Tin	ppm		>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1 150	history2 158
	ppm ppm		limit/base	current 322 0		
Boron Barium	ppm	ASTM D5185m	limit/base	322	150	158
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	limit/base	322 0	150 <1	158 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	322 0 174	150 <1 119	158 0 124
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	322 0 174 <1	150 <1 119 <1	158 0 124 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	322 0 174 <1 923	150 <1 119 <1 584	158 0 124 <1 673
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		322 0 174 <1 923 2068	150 <1 119 <1 584 1427	158 0 124 <1 673 1544
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760	322 0 174 <1 923 2068 1132	150 <1 119 <1 584 1427 631	158 0 124 <1 673 1544 651
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800	322 0 174 <1 923 2068 1132 1177	150 <1 119 <1 584 1427 631 772	158 0 124 <1 673 1544 651 815
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800 3000	322 0 174 <1 923 2068 1132 1177 4214	150 <1 119 <1 584 1427 631 772 2372	158 0 124 <1 673 1544 651 815 2679
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800 3000 limit/base	322 0 174 <1 923 2068 1132 1177 4214 current	150 <1 119 <1 584 1427 631 772 2372 history1	158 0 124 <1 673 1544 651 815 2679 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	760 800 3000 limit/base	322 0 174 <1 923 2068 1132 1177 4214 current 17	150 <1 119 <1 584 1427 631 772 2372 history1 15	158 0 124 <1 673 1544 651 815 2679 history2 20
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25	322 0 174 <1 923 2068 1132 1177 4214 current 17 4	150 <1 119 <1 584 1427 631 772 2372 2372 history1 15 1	158 0 124 <1 673 1544 651 815 2679 history2 20 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20	322 0 174 <1 923 2068 1132 1177 4214 current 17 4 4	150 <1 119 <1 584 1427 631 772 2372 history1 15 1 2	158 0 124 <1 673 1544 651 815 2679 history2 20 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3	322 0 174 <1 923 2068 1132 1177 4214 current 17 4 4 4 4	150 <1 119 <1 584 1427 631 772 2372 history1 15 1 2 2 history1	158 0 124 <1 673 1544 651 815 2679 history2 20 3 2 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3 >20	322 0 174 <1 923 2068 1132 1177 4214 current 17 4 4 4 4 current	150 <1 119 <1 584 1427 631 772 2372 history1 15 1 5 1 2 history1 0.3	158 0 124 <1 673 1544 651 815 2679 history2 20 3 2 20 3 2 2 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3 >20	322 0 174 <1 923 2068 1132 1177 4214 current 17 4 4 4 4 current 0.3 9.0	150 <1 119 <1 584 1427 631 772 2372 history1 15 15 1 2 history1 0.3 9.3	158 0 124 <1 673 1544 651 815 2679 history2 20 3 20 3 2 2 history2 0.3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3 >20 >30 >30	322 0 174 <1 923 2068 1132 1177 4214 <i>current</i> 17 4 4 4 <i>current</i> 0.3 9.0 22.9 <i>current</i>	150 <1 119 <1 584 1427 631 772 2372 history1 15 1 5 1 2 history1 0.3 9.3 23.7 history1	158 0 124 <1 673 1544 651 815 2679 history2 20 3 2 20 3 2 history2 0.3 10.6 23.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	760 800 3000 limit/base >25 >20 limit/base >3 >20 >3 >20	322 0 174 <1 923 2068 1132 1177 4214 current 17 4 4 4 4 current 0.3 9.0 22.9	150 <1 119 <1 584 1427 631 772 2372 history1 15 1 2 history1 0.3 9.3 23.7	158 0 124 <1 673 1544 651 815 2679 history2 20 3 20 3 2 0.3 2 history2 0.3 10.6 23.4 history2



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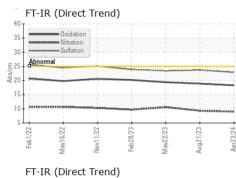
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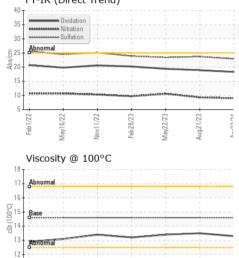
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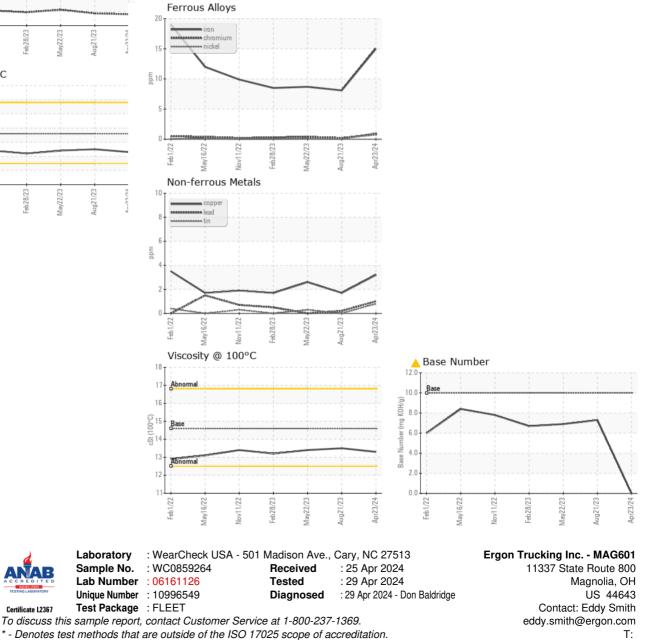
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OIL ANALYSIS REPORT





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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.6	13.3	13.5	13.4
GRAPHS						



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

Report Id: ERGMAG601 [WUSCAR] 06161126 (Generated: 04/29/2024 13:31:00) Rev: 1

Certificate 12367

Submitted By: Eddy Smith Page 2 of 2

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