

## **OIL ANALYSIS REPORT**

Sample Rating Trend





# Machine Id 928033-1191

Component Diesel Engine Fluid

CHEVRON DELO 400 XLE 15W40 (--- 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 condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0064475	GFL0064442	GFL0064401	
Sample Date		Client Info		29 Aug 2023	01 Mar 2023	27 Dec 2022	
Machine Age	hrs	Client Info		12261	11354	10043	
Oil Age	hrs	Client Info		639	0	0	
Oil Changed		Client Info		Changed	Changed	Not Changd	
Sample Status				NORMAL	NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>120	14	9	5	
Chromium	ppm	ASTM D5185m		<1	<1	<1	
Nickel	ppm	ASTM D5185m	>5	0	0	0	
Titanium	ppm	ASTM D5185m	>2	12	<1	0	
Silver	ppm	ASTM D5185m	>2	0	0	0	
Aluminum	ppm	ASTM D5185m	>20	8	12	5	
Lead	ppm	ASTM D5185m	>40	0	<1	<1	
Copper	ppm	ASTM D5185m	>330	<1	<1	<1	
Tin	ppm	ASTM D5185m	>15	<1	<1	0	
Vanadium	ppm	ASTM D5185m		<1	0	0	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 54	history1 156	history2 89	
	ppm ppm		limit/base				
Boron		ASTM D5185m	limit/base	54	156	89	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	54 0	156 0	89 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	54 0 55	156 0 111	89 0 117	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	54 0 55 <1	156 0 111 <1	89 0 117 <1 456 1729	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	54 0 55 <1 728	156 0 111 <1 445	89 0 117 <1 456	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 830	54 0 55 <1 728 1705 738 881	156 0 1111 <1 445 1592 730 865	89 0 117 <1 456 1729 771 922	
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	54 0 55 <1 728 1705 738	156 0 1111 <1 445 1592 730	89 0 117 <1 456 1729 771	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 830	54 0 55 <1 728 1705 738 881	156 0 1111 <1 445 1592 730 865	89 0 117 <1 456 1729 771 922	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 830 2770 limit/base	54 0 55 <1 728 1705 738 881 3619	156 0 1111 <1 445 1592 730 865 2441	89 0 117 <1 456 1729 771 922 3037	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	760 830 2770 limit/base	54 0 55 <1 728 1705 738 881 3619 current	156 0 1111 <1 445 1592 730 865 2441 history1	89 0 117 <1 456 1729 771 922 3037 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	760 830 2770 limit/base >25	54 0 55 <1 728 1705 738 881 3619 current 6	156 0 1111 <1 445 1592 730 865 2441 history1 6	89 0 117 <1 456 1729 771 922 3037 history2 5	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25	54 0 55 <1 728 1705 738 881 3619 <u>current</u> 6 4	156 0 1111 <1 445 1592 730 865 2441 history1 6 0	89 0 117 <1 456 1729 771 922 3037 history2 5 <1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20	54 0 55 <1 728 1705 738 881 3619 current 6 4 4	156 0 1111 <1 445 1592 730 865 2441 history1 6 0 6	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base >4	54 0 55 <1 728 1705 738 881 3619 current 6 4 4 4	156 0 1111 <11 445 1592 730 865 2441 history1 6 0 6 6 Nistory1	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base >4	54 0 55 <1 728 1705 738 881 3619 <u>current</u> 6 4 4 4 <u>current</u>	156 0 1111 <1 445 1592 730 865 2441 <b>history1</b> 6 0 6 <b>bistory1</b> 0.7	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4 history2 0.4	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base >4 >20	54 0 55 <1 728 1705 738 881 3619 <i>current</i> 6 4 4 4 <i>current</i> 0.7 10.2	156 0 1111 <11 445 1592 730 865 2441 history1 6 0 6 0 6 history1 0.7 10.0	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4 4 history2 0.4 8.0	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	760 830 2770 limit/base >25 >20 limit/base >4 >20 >30 limit/base	54 0 55 <1 728 1705 738 881 3619 current 6 4 4 4 0.7 10.2 22.0	156 0 1111 <11 445 1592 730 865 2441 history1 6 0 6 history1 0.7 10.0 22.6 history1	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4 history2 0.4 8.0 21.2 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 830 2770 imit/base >25 >20 imit/base >4 >20 >30 imit/base >25	54 0 55 <1 728 1705 738 881 3619 <u>current</u> 6 4 4 4 <u>current</u> 0.7 10.2 22.0	156 0 1111 <1 445 1592 730 865 2441 <b>history1</b> 6 0 6 <b>bistory1</b> 0.7 10.0 22.6	89 0 117 <1 456 1729 771 922 3037 history2 5 <1 4 <u>history2</u> 0.4 8.0 21.2	



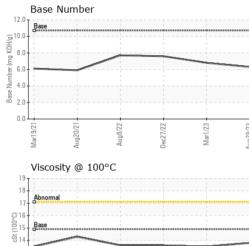
13 Abnorma 12 11

Mar19/21

Aug20/21

# **OIL ANALYSIS REPORT**

VISUAL



		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	
Aug8/22 Dec27/22	Mar1/23 Aug29/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Aug	Ma	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
°C		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		FLUID PROPE	RTIES	method	limit/base	current	history1	history2	
		Visc @ 100°C	cSt	ASTM D445	14.9	13.8	13.5	13.6	
		GRAPHS							
·		Ferrous Alloys							
Aug8/22	Mar1/23	iron 15-							
A De	2				/				
		톱 10-							
		5	$\sim$						
			-						
		Mar19/21	Dec27/22 -	Mar1/23 -	Aug29/23				
		Non-ferrous Meta		W	Aug				
		8 - copper							
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		and the second se							
		2							
		Mar1 9/21 Aug20/21	Dec27/22	Mar1/23	Aug29/23				
		≥ ₹ < Viscosity @ 100°C		2	Au				
		<sup>19</sup> T			12	Base Number			
		18-			12.	Base			
		17+ Abnormal			10. Ş	0			
		Q <sup>16</sup>			.8 Base Number (mg KOH(g) 4.	0-			
		D-16 Base 53 14			<u>ل</u> به و.	0			
					- N 4.	0			
		13 Abnormal			2.	0			
		12-			0.				
			7/22	Mar1/23 -			Aug8/22 -	Mar1/23 - ug29/23 +	
		Mar19/21 Aug20/21	Dec27/22	Mar	Aug29/23	Mar19/21 Aug20/21	Aug8/22 Dec27/22	Mar1/23 Aug29/23	
	Laboratory Sample No. Lab Number	: GFL0064475	01 Madison Ave., Cary, NC 27513 Received : 13 Sep 2023 Diagnosed : 15 Sep 2023			GFL Environmental - 624 - Elmira Hauling 10164 M-32 Elmira, MI			
TESTING LABORATORY	Unique Number	: 10645755	•	Diagnostician : Wes Davis				US 49730	
Certificate L2367	Test Package			•				DY GROBASKI	
		contact Customer Serv are outside of the ISO 1						ericanwaste.org (989)370-2941	
		cifications are based on t				(JCGM 106:2012)	1.	(989)370-2941 F:	

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Page 2 of 2