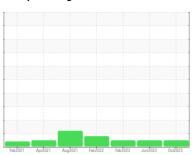


# **OIL ANALYSIS REPORT**

## Sample Rating Trend







# Machine Id WL0090-342 Component Diesel Engine Fluid CHEVRON DELO 400 XLE 10W30 (--- 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

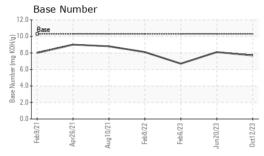
### **Fluid Condition**

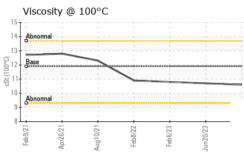
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sample Number			Oct2023	Feb2022 Feb2023 Jun2023	Apr2021 Aug2021	Feb2021	IAL)	
Sample Date   Client Info   12 Oct 2023   20 Jun 2023   06 Feb 2	story2	histo	history1	current	limit/base	method	/ATION	SAMPLE INFORM
Sample Date   Client Info   12 Oct 2023   20 Jun 2023   06 Feb 2	)64733	GFL0064	GFL0073484	GFL0084491		Client Info		Sample Number
Machine Age         hrs         Client Info         15230         14695         14006           Oil Age         hrs         Client Info         535         689         559           Oil Changed         Changed         Changed         Changed         Changed           Sample Status         NORMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history1           Fuel         WC Method         NEG         NEG         NEG         NEG           Glycol         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         14         11         16           Korhornium         ppm         ASTM D5185m         >20         0         -1         -1           Iron         ppm         ASTM D5185m         >2         0         0         -1         2           Iron         ppm         ASTM D5185m         >2         0         -1         0         -1         0           <	2023	06 Feb 2	20 Jun 2023	12 Oct 2023		Client Info		
Oil Age         hrs         Client Info         535         689         559           Oil Changed         Client Info         Changed         Changed<		14006	14695	15230		Client Info	hrs	
Oil Changed Sample Status         Client Info         Changed NORMAL         1.0 <td></td> <td>559</td> <td>689</td> <th>535</th> <td></td> <td>Client Info</td> <td>hrs</td> <td></td>		559	689	535		Client Info	hrs	
NORMAL   NORMAL   NORMAL   CONTAMINATION   method   limit/base   current   history1	ed	Changed	Changed	Changed		Client Info		-
Fuel	1AL	NORMAL						
WC Method   NEG   NEG   NEG   NEG   WEAR METALS   method   limit/base   current   history1   history2   history2   history2   history3   history2   history3   hist	story2	histo	history1	current	limit/base	method	ON	CONTAMINATI
WEAR METALS         method         limit/base         current         history1         history1           Iron         ppm         ASTM D5185m         >100         14         11         16           Chromium         ppm         ASTM D5185m         >20         0         <1	C	<1.0	<1.0	<1.0	>5	WC Method		Fuel
Iron	Э	NEG	NEG	NEG		WC Method		Glycol
Chromium         ppm         ASTM D5185m         >20         0         <1         <1           Nickel         ppm         ASTM D5185m         >2         0         0         0           Titanium         ppm         ASTM D5185m         >2         0         0         <1	story2	histo	history1	current	limit/base	method	5	WEAR METALS
Nickel		16	11	14	>100	ASTM D5185m	ppm	Iron
Titanium		<1	<1	0	>20	ASTM D5185m	ppm	Chromium
Silver         ppm         ASTM D5185m         >2         0         <1         0           Aluminum         ppm         ASTM D5185m         >25         1         1         2           Lead         ppm         ASTM D5185m         >25         1         1         2           Copper         ppm         ASTM D5185m         >330         <1         <1         2           Tin         ppm         ASTM D5185m         >15         <1         <1         <1         <1           Antimony         ppm         ASTM D5185m                Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         <1         0         0           ADDITIVES         method         limit/base         current         history1         history1         history1           ADDITIVES         method         limit/base         current         history1         history1           ADDITIVES         method         limit/base         current         history1         history1           ADDITIVES         method         l		0	0	0	>2	ASTM D5185m	ppm	Nickel
Aluminum         ppm         ASTM D5185m         >25         1         1         2           Lead         ppm         ASTM D5185m         >40         0         0         <1		<1	0	0	>2	ASTM D5185m	ppm	Titanium
Lead			<1	0	>2	ASTM D5185m	ppm	Silver
Copper         ppm         ASTM D5185m         >330         <1         <1         2           Tin         ppm         ASTM D5185m         >15         <1		2	1	1	>25	ASTM D5185m	ppm	Aluminum
Tin         ppm         ASTM D5185m         >15         <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	0	0	>40	ASTM D5185m	ppm	Lead
Antimony         ppm         ASTM D5185m   0           ADDITIVES         method         limit/base         current         history1         his		2	<1	<1	>330	ASTM D5185m	ppm	Copper
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         56         78         67           Barium         ppm         ASTM D5185m         <1         0         <1           Molybdenum         ppm         ASTM D5185m         55         56         80           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         2900         1545         1700         1960           Phosphorus         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1           Sodium         ppm         ASTM D5185m         >20         0         2         0		<1	<1	<1	>15	ASTM D5185m	ppm	Tin
Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         56         78         67           Barium         ppm         ASTM D5185m         <1						ASTM D5185m	ppm	Antimony
ADDITIVES         method         limit/base         current         history1         history1           Boron         ppm         ASTM D5185m         56         78         67           Barium         ppm         ASTM D5185m         <1		0	0	0		ASTM D5185m	ppm	Vanadium
Boron         ppm         ASTM D5185m         56         78         67           Barium         ppm         ASTM D5185m         <1		0	<1	0		ASTM D5185m	ppm	Cadmium
Barium         ppm         ASTM D5185m         <1	story2	histo	history1	current	limit/base	method		ADDITIVES
Molybdenum         ppm         ASTM D5185m         55         56         80           Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         410         439         29           Calcium         ppm         ASTM D5185m         2900         1545         1700         1960           Phosphorus         ppm         ASTM D5185m         1100         956         1015         910           Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1		67	78	56		ASTM D5185m	ppm	Boron
Manganese         ppm         ASTM D5185m         0         <1         <1           Magnesium         ppm         ASTM D5185m         410         439         29           Calcium         ppm         ASTM D5185m         2900         1545         1700         1960           Phosphorus         ppm         ASTM D5185m         1100         956         1015         910           Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1		<1	0	<1		ASTM D5185m	ppm	Barium
Magnesium         ppm         ASTM D5185m         410         439         29           Calcium         ppm         ASTM D5185m         2900         1545         1700         1960           Phosphorus         ppm         ASTM D5185m         1100         956         1015         910           Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1		80	56	55		ASTM D5185m	ppm	Molybdenum
Calcium         ppm         ASTM D5185m         2900         1545         1700         1960           Phosphorus         ppm         ASTM D5185m         1100         956         1015         910           Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1		<1	<1	0		ASTM D5185m	ppm	Manganese
Phosphorus         ppm         ASTM D5185m         1100         956         1015         910           Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1         1         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1		29	439	410		ASTM D5185m	ppm	Magnesium
Zinc         ppm         ASTM D5185m         1200         1142         1229         1067           Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1	0	1960	1700	1545	2900	ASTM D5185m	ppm	Calcium
Sulfur         ppm         ASTM D5185m         4000         3093         4045         3934           CONTAMINANTS         method         limit/base         current         history1         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1         1         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1		910	1015	956	1100	ASTM D5185m	ppm	Phosphorus
CONTAMINANTS         method         limit/base         current         history1         history1           Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1	7	1067	1229	1142	1200	ASTM D5185m	ppm	Zinc
Silicon         ppm         ASTM D5185m         >25         2         4         3           Sodium         ppm         ASTM D5185m         <1         1         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1	4	3934	4045	3093	4000	ASTM D5185m	ppm	Sulfur
Sodium         ppm         ASTM D5185m         <1         1         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1         history1	story2	histo	history1	current	limit/base	method	TS	CONTAMINAN <sup>*</sup>
Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history1		3	4	2	>25	ASTM D5185m	ppm	Silicon
INFRA-RED method limit/base current history1 history		2	1	<1		ASTM D5185m	ppm	Sodium
·		0	2	0	>20	ASTM D5185m	ppm	Potassium
Soot % % *ASTM D7844 ~3 0 4 0 3 0 4	story2	histo	history1	current	limit/base	method		INFRA-RED
0.0 TO THE PROPERTY OF THE PRO		0.4	0.3	0.4	>3	*ASTM D7844	%	Soot %
<b>Nitration</b> Abs/cm *ASTM D7624 >20 <b>7.4</b> 7.1 9.4		9.4	7.1	7.4	>20	*ASTM D7624	Abs/cm	Nitration
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.0         18.9         18.1	1	18.1	18.9	18.0	>30	*ASTM D7415	Abs/.1mm	Sulfation
FLUID DEGRADATION method limit/base current history1 history	story2							
Oxidation Abs/.1mm *ASTM D7414 >25 <b>13.6</b> 15.1 13.8	3	13.8	15.1	13.6	>25	*ASTM D7414	Abs/.1mm	Oxidation
Base Number (BN)   mg KOH/g   ASTM D2896   10.3   7.7   8.1   6.7		6.7	8.1	7.7	10.3	ASTM D2896	mg KOH/g	Base Number (BN)



# **OIL ANALYSIS REPORT**

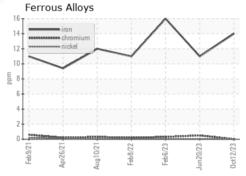


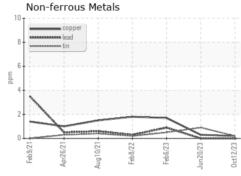


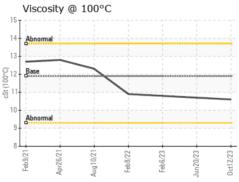
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

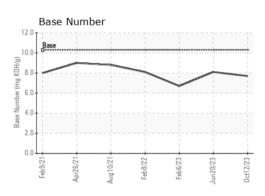
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	11.9	10.6	10.7	10.8	

## **GRAPHS**













Laboratory Sample No. Lab Number Unique Number : 10699509 Test Package : FLEET

: GFL0084491 : 05982214

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 18 Oct 2023

Diagnosed : 19 Oct 2023 Diagnostician : Don Baldridge GFL Environmental - 627 - Wexford County LF

990 N Mackinaw Trail Manton, MI US 49663

Contact: GARY BREWER

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)

T:

F: