

## **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

### 529014-1211

#### 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.

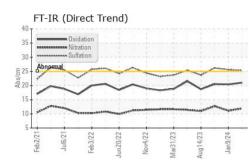
### Fluid Condition

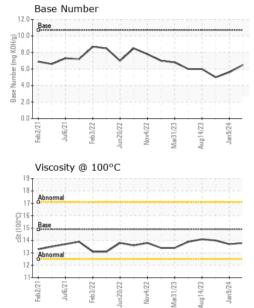
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0110954	GFL0096096	GFL0084486
Sample Date		Client Info		03 Apr 2024	09 Jan 2024	19 Oct 2023
Machine Age	hrs	Client Info		17806	17245	16606
Oil Age	hrs	Client Info		1350	639	566
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	34	24	34
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		16	12	13
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	5	4	6
Lead	ppm	ASTM D5185m	>40	5	5	15
Copper	ppm	ASTM D5185m	>330	2	<1	2
Tin	ppm	ASTM D5185m	>15	<1	1	1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ACTM DE10Em			0	<1
Caumum	ppm	ASTM D5185m		<1	0	<1
ADDITIVES	ppm	method	limit/base	<1 current	0 history1	<1 history2
	ppm		limit/base		-	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 70	history1 62	history2 26
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 70 0	history1 62 0	history2 26 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 70 0 52	history1 62 0 58	history2 26 0 48
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 70 0 52 1	history1 62 0 58 <1	history2 26 0 48 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 70 0 52 1 736	history1 62 0 58 <1 784 1712 850	history2 26 0 48 1 723
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		current           70           0           52           1           736           1537	history1 62 0 58 <1 784 1712	history2 26 0 48 1 723 1504
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760	Current 70 0 52 1 736 1537 740	history1 62 0 58 <1 784 1712 850	history2 26 0 48 1 723 1504 678
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	760 830	current           70           0           52           1           736           1537           740           899	history1 62 0 58 <1 784 1712 850 1046	history2 26 0 48 1 723 1504 678 863
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	760 830 2770 Iimit/base	Current 70 0 52 1 736 1537 740 899 3071	history1 62 0 58 <1 784 1712 850 1046 3522	history2 26 0 48 1 723 1504 678 863 2735
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 830 2770 Iimit/base	current         70         0         52         1         736         1537         740         899         3071         current	history1           62           0           58           <1           784           1712           850           1046           3522           history1	history2 26 0 48 1 723 1504 678 863 2735 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	760 830 2770 Iimit/base >25	current           70           0           52           1           736           1537           740           899           3071           current           8	history1           62           0           58           <1           784           1712           850           1046           3522           history1           6	history2         26         0         48         1         723         1504         678         863         2735         history2         9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	760 830 2770 Iimit/base >25	current           70           0           52           1           736           1537           740           899           3071           current           8           5	history1           62           0           58           <1           784           1712           850           1046           3522           history1           6           4	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	760 830 2770 limit/base >25 >20	current           70           0           52           1           736           1537           740           899           3071           current           8           5           8           current           1	history1           62           0           58           <1           784           1712           850           1046           3522           history1           6           4           5           history1           0.8	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7         11         history2         9         7         11         history2         0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base	current         70         0         52         1         736         1537         740         899         3071         current         8         5         8         5         8         current	history1         62         0         58         <1         784         1712         850         1046         3522         history1         6         4         5         history1	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7         11         history2         0.7         12.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base >3	current           70           0           52           1           736           1537           740           899           3071           current           8           5           8           current           1	history1           62           0           58           <1           784           1712           850           1046           3522           history1           6           4           5           history1           0.8	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7         11         history2         9         7         11         history2         0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	760 830 2770 Iimit/base >25 >20 Iimit/base >3 >20	current           70           0           52           1           736           1537           740           899           3071           current           8           5           8           5           8           1           1.1.9	history1           62           0           58           <1           784           1712           850           1046           3522           history1           6           4           5           history1           0.8           11.1	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7         11         history2         0.7         12.7
ADDITIVES 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	method           ASTM D5185m           ASTM D5185m	760 830 2770 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >3 >20	current         70         0         52         1         736         1537         740         899         3071         current         8         5         8         current         1         11.9         25.3	history1         62         0         58         <1         784         1712         850         1046         3522         history1         6         4         5         history1         0.8         11.1         25.6	history2         26         0         48         1         723         1504         678         863         2735         history2         9         7         11         history2         0.7         12.7         26.2



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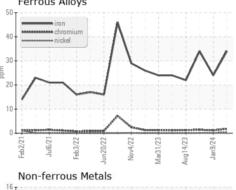


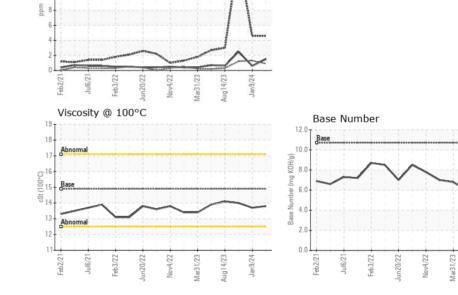


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	13.8	13.7	14.0
GRAPHS						

Ferrous Alloys

14 12 10





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 629 - Northern A1 Sample No. : GFL0110954 Received : 08 Apr 2024 3947 US 131 N Lab Number : 06140931 Tested : 08 Apr 2024 Kalkaska, MI US 49646-8428 Unique Number : 10965739 Diagnosed : 08 Apr 2024 - Wes Davis Test Package : FLEET Contact: MITCH HERSHBERGER Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. T: (231)624-0848 \* - 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:

Submitted By: Mitch Hershberger

Aug14/23 .

Jan9/24

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