

# **OIL ANALYSIS REPORT**

Sample Rating Trend



# Machine Id 123012-1058

#### 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 INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084508	GFL0064717	GFL0030374
Sample Date		Client Info		01 Sep 2023	21 Dec 2022	19 Aug 2022
Machine Age	hrs	Client Info		17868	17187	16587
Oil Age	hrs	Client Info		681	600	577
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	30	23	23
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		12	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	4	3	4
Lead	ppm	ASTM D5185m	>40	4	2	3
Copper	ppm	ASTM D5185m	>330	1	<1	<1
Tin	ppm	ASTM D5185m	>15	- <1	<1	<1
Vanadium	ppm	ASTM D5185m	210	<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
	ppin				-	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		40	25	201
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		50	66	121
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m		872	885	626
Calcium	ppm	ASTM D5185m		1641	1005	
Phosphorus					1225	1420
	ppm	ASTM D5185m	760	798	986	731
Zinc	ppm	ASTM D5185m	830	798 1042	986 1273	731 908
Sulfur	ppm ppm			798	986	731
Sulfur CONTAMINAN	ppm ppm	ASTM D5185m ASTM D5185m method	830 2770 limit/base	798 1042 4047 current	986 1273 3477 history1	731 908 2443 history2
Sulfur CONTAMINANT Silicon	ppm ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	830 2770 limit/base	798 1042 4047 current 5	986 1273 3477 history1 4	731 908 2443 history2 5
Sulfur CONTAMINAN Silicon Sodium	ppm ppm TS	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	830 2770 limit/base >25	798 1042 4047 current 5 14	986 1273 3477 history1 4 17	731 908 2443 history2 5 24
Sulfur CONTAMINANT Silicon	ppm ppm TS ppm	ASTM D5185m ASTM D5185m method ASTM D5185m	830 2770 limit/base >25	798 1042 4047 current 5	986 1273 3477 history1 4	731 908 2443 history2 5
Sulfur CONTAMINAN Silicon Sodium	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	830 2770 limit/base >25	798 1042 4047 current 5 14	986 1273 3477 history1 4 17	731 908 2443 history2 5 24
Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED	ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m	830 2770 limit/base >25 >20 limit/base	798 1042 4047 current 5 14 12	986 1273 3477 history1 4 17 13	731 908 2443 history2 5 24 14
Sulfur CONTAMINANT Silicon Sodium Potassium	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method	830 2770 imit/base >25 >20 imit/base >3	798 1042 4047 current 5 14 12 current	986 1273 3477 history1 4 17 13 history1	731 908 2443 history2 5 24 14 history2
Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> *ASTM D7844	830 2770 imit/base >25 >20 imit/base >3	798 1042 4047 <u>current</u> 5 14 12 <u>current</u> 0.7	986 1273 3477 history1 4 17 13 history1 0.7	731 908 2443 history2 5 24 14 14 history2 0.7
Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm TS ppm ppm ppm ppm opm ov pom ov Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> *ASTM D7844 *ASTM D7624	830 2770 imit/base >25 >20 imit/base >3 >20	798 1042 4047 5 14 12 current 0.7 11.7	986 1273 3477 history1 4 17 13 history1 0.7 10.5	731 908 2443 history2 5 24 14 history2 0.7 11.0
Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm TS ppm ppm ppm ppm opm ov pom ov Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824	830 27770 imit/base >25 >20 imit/base >3 >20 >30	798 1042 4047 5 14 12 current 0.7 11.7 24.2	986 1273 3477 history1 4 17 13 history1 0.7 10.5 21.2	731 908 2443 history2 5 24 14 history2 0.7 11.0 25.4



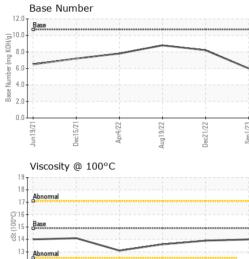
12 11

Jun19/21

Dec15/21-

# **OIL ANALYSIS REPORT**

VISUAL



Apr4/22

Aug19/22

	VISUAL		method	limit/base	current	history1	history
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate		*Visual	NONE	NONE	NONE	NONE
	Silt		*Visual	NONE	NONE	NONE	NONE
	Debris		*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt		*Visual	NONE	NONE	NONE	NONE
ng/indan	Appearance		*Visual	NORML	NORML	NORML	NORML
	Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water		*Visual	>0.2	NEG	NEG	NEG
				>0.2			
	Free Water		*Visual		NEG	NEG	NEG
	FLUID PROP		method	limit/base	current	history1	history
0	Visc @ 100°C	cSt	ASTM D445	14.9	14.0	13.9	13.6
	GRAPHS						
	Ferrous Alloys						
	40 iron	~					
	35 - nickel						
	30			/			
	E 25 20	$\sim$	/				
	15						
	10						
		Apr4/22 - 1g19/22 -	1/22 -	/23 -			
	Jun19/21	Apr4/22 Aug19/22	Dec21/22	Sep 1/23			
	Non-ferrous Met						
	<sup>10</sup> T						
	copper						
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	Jun 19/21	Apr4/22 Aug19/22	Dec21/22	Sep 1/23			
	Jun Dec	Ap Aug1	Decź	3			
	Viscosity @ 100°	°C			Base Number	r	
	19		1	12.0	Base		
	Abnormal						
				0.8 KOH			-
	() 16 00 15 83 14			Bwj			
	5 14			5.0 g			
				N 4.0			
	13 Abnormal		1	2.0			
	12						
	11	22	- 22	0.0	21+	22	- 22
	Jun19/21	Apr4/22 Aug19/22	Dec21/22	Sep 1/23	Jun 19/21 Dec 15/21	Apr4/22 Aug19/22	Dec21/22
		Au	ő			Au	ā
	: WearCheck USA -	501 Madis	on Ave., Ca	ary, NC 27513	GFL Er	vironmental - 6	29 - Northerr
<b>y</b>	: GFL0084508	Received		Sep 2023			3947 US 13
		Diagnose		Sep 2023			Kalkaska
r	: 05946932	•					
r er	: 10642891	Diagnosti	cian : Do	n Baldridge	-		US 49646-8
ry lo. ber mber kage		Diagnosti		-	Co	ntact: MITCH H	



To discuss this sa \* - Denotes test m Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367