

OIL ANALYSIS REPORT

Sample Rating Trend



128017-1159

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

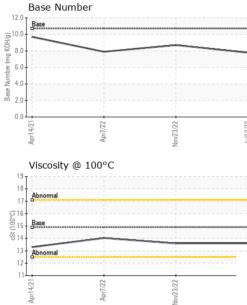
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		Apr202	1 Apr2022	Nov2022 J	uI2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084524	GFL0060819	GFL0042771
Sample Date		Client Info		13 Jul 2023	23 Nov 2022	07 Apr 2022
Machine Age	hrs	Client Info		6021	5324	4724
Oil Age	hrs	Client Info		697	600	1178
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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	14	19	27
Chromium	ppm	ASTM D5185m	>20	1	2	3
Nickel	ppm	ASTM D5185m	>4	<1	0	2
Titanium	ppm	ASTM D5185m		11	2	14
Silver	ppm	ASTM D5185m		0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	4	8	13
Lead	ppm	ASTM D5185m	>40	<1	1	2
Copper	ppm	ASTM D5185m	>330	<1	1	2
Tin	ppm	ASTM D5185m	>15	<1	0	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 123	history1 225	history2 60
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	123	225	60
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	123 0	225 0	60 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	123 0 56	225 0 109	60 0 38
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	123 0 56 <1	225 0 109 <1	60 0 38 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	123 0 56 <1 642	225 0 109 <1 640 1518 685	60 0 38 <1 783 1603 769
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		123 0 56 <1 642 1471 697 820	225 0 109 <1 640 1518	60 0 38 <1 783 1603
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	760	123 0 56 <1 642 1471 697	225 0 109 <1 640 1518 685	60 0 38 <1 783 1603 769
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	123 0 56 <1 642 1471 697 820	225 0 109 <1 640 1518 685 794	60 0 38 <1 783 1603 769 916
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	123 0 56 <1 642 1471 697 820 2969	225 0 109 <1 640 1518 685 794 2791	60 0 38 <1 783 1603 769 916 2848 history2 8
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	760 830 2770 limit/base	123 0 56 <1 642 1471 697 820 2969 current	225 0 109 <1 640 1518 685 794 2791 history1	60 0 38 <1 783 1603 769 916 2848 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 method	760 830 2770 limit/base	123 0 56 <1 642 1471 697 820 2969 current 6	225 0 109 <1 640 1518 685 794 2791 history1 6	60 0 38 <1 783 1603 769 916 2848 history2 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	123 0 56 <1 642 1471 697 820 2969 Current 6 3	225 0 109 <1 640 1518 685 794 2791 history1 6 1	60 0 38 <1 783 1603 769 916 2848 history2 8 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20	123 0 56 <1 642 1471 697 820 2969 Current 6 3 10	225 0 109 <1 640 1518 685 794 2791 history1 6 1 1	60 0 38 <1 783 1603 769 916 2848 history2 8 6 6 42
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	123 0 56 <1 642 1471 697 820 2969 <u>current</u> 6 3 10 <u>current</u>	225 0 109 <1 640 1518 685 794 2791 history1 6 1 1 14 history1	60 0 38 <1 783 1603 769 916 2848 history2 8 6 42 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 ppm ppm ppm	ASTM D5185m ASTM D5185m	760 830 2770 limit/base >25 >20 limit/base >3 >20	123 0 56 <1 642 1471 697 820 2969 <u>current</u> 6 3 10 <u>current</u>	225 0 109 <1 640 1518 685 794 2791 history1 6 1 14 14 history1 0.5	60 0 38 <1 783 1603 769 916 2848 history2 8 6 42 history2 0.6
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 >3 >20	123 0 56 <1 642 1471 697 820 2969 <u>current</u> 6 3 10 <u>current</u> 0.4 10.4 20.7	225 0 109 <1 640 1518 685 794 2791 history1 6 1 1 14 history1 0.5 11.8	60 0 38 <1 783 1603 769 916 2848 history2 8 6 42 history2 0.6 12.9
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 >3 >20 >3 >20	123 0 56 <1 642 1471 697 820 2969 <u>current</u> 6 3 10 <u>current</u> 0.4 10.4 20.7	225 0 109 <1 640 1518 685 794 2791 history1 6 1 14 0.5 11.8 26.7	60 0 38 <1 783 1603 769 916 2848 history2 8 6 42 history2 0.6 12.9 25.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	760 830 2770 imit/base >25 20 imit/base >3 >20 >30 >30	123 0 56 <1 642 1471 697 820 2969 Current 6 3 10 Current 0.4 10.4 20.7	225 0 109 <1 640 1518 685 794 2791 history1 6 1 14 0.5 11.8 26.7 history1	60 0 38 <1 783 1603 769 916 2848 history2 8 6 42 history2 0.6 12.9 25.0 history2



OIL ANALYSIS REPORT

VISUAL



		VICONE							
		White Meta	ł	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Meta	al	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate		scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt		scalar	*Visual	NONE	NONE	NONE	NONE
		Debris			*Visual	NONE	NONE	NONE	NONE
		Sand/Dirt			*Visual	NONE	NONE	NONE	NONE
- 66	1/23 -				*Visual	NORML	NORML	NORML	NORML
Nov23/22	22/22/04	Odor			*Visual	NORML	NORML	NORML	NORML
	-	Emulsified			*Visual	>0.2	NEG	NEG	NEG
		Free Water			*Visual	20.2	NEG	NEG	NEG
		FLUID F Visc @ 100			method ASTM D445	limit/base 14.9	current 13.6	history1 13.6	history2 14.03
		GRAPH			A31101 D445	14.5	13.0	13.0	14.05
		Ferrous A							
		³⁰ T							
3/77	77 /c	25 - christer	omium						
Nov23/22	74 041	nici							
		20							
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		Apr14/21	Apr7/22		Nov23/22	Jul13/23			
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		Non-ferro	us Metals						
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		4/21	Apr7/22 -		3/22	3/23			
		Apr14/2	Apr		Nov23/22	Jul13/23			
		Viscosity	@ 100°C				Base Number		
		19 18	1			12.0	Base	1	
		Abnormal				10.0			
						0.8 KOH/0			
		(;)16 00_15 ⁷⁵ 14				Bm)			
		53 14				ь 6.0-			
		12				N 4.0			
		13 Abnormal	*****			2.0			
		12							
					/22		1/21	Apr//22 +	
		11	122		cr.	13	Apr14/2	.73	5
		11 11 11 4/21	Apr7/22		012	2		4 6	
		Apr14/21	Apr7/22		Nov23/22	-		2	
4	Laboratory	: WearChecl	< USA - 50	1 Madiso	on Ave., Ca	ry, NC 27513		z vironmental - 62	9 - Northern A
NAB	Sample No.	: WearCheck : GFL00845	k USA - 50 24 R é	1 Madiso eceived	on Ave., Ca : 17 .	ry, NC 27513 Jul 2023		z vironmental - 62	9 - Northern / 3947 US 131
	Sample No. Lab Number	: WearChecl : GFL00845 : 05899625	< USA - 50 24 R a Di	1 Madiso eceived iagnose	on Ave., Ca : 17 . d : 18 .	ry, NC 27513 Jul 2023 Jul 2023		≠ vironmental - 62	9 - Northern / 3947 US 131 Kalkaska, N
THE LIZET	Sample No.	: WearCheck : GFL00845 : 05899625 r : 10560981	< USA - 50 24 R a Di	1 Madiso eceived	on Ave., Ca : 17 . d : 18 .	ry, NC 27513 Jul 2023	GFL Env	≠ vironmental - 62	9 - Northern / 3947 US 131 Kalkaska, M IS 49646-842

Submitted By: Mitch Hershberger