

## **OIL ANALYSIS REPORT**

### Machine Id **FREIGHTLINER 1174**

### Component Diesel Engine Fluid CHEVRON DELO 400 XLE 10W30 (40 LTR)

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

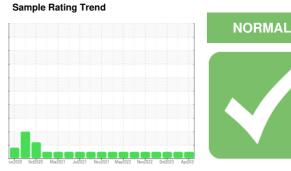
All component wear rates are normal.

#### 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.

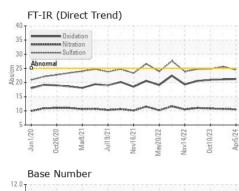


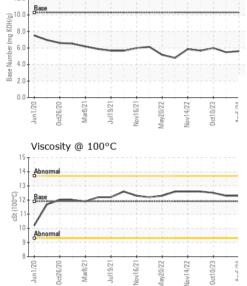


SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0851835	WC0851826	WC0733134
Sample Date		Client Info		05 Apr 2024	08 Jan 2024	10 Oct 2023
Machine Age	kms	Client Info		1017069	958432	894893
Oil Age	kms	Client Info		65000	65000	65000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	٧	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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	22	27	24
Chromium	ppm	ASTM D5185m	>5	1	1	1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	~_	0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	8	7	6
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm	ASTM D5185m		4	4	4
Tin	ppm	ASTM D5185m	>5	0	<1	0
Vanadium	ppm	ASTM D5185m	20	<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	pp		limit/base		-	-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 22	history1 21	history2 21
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 22 0	history1 21 <1	history2 21 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 22 0 6	history1 21 <1 1	history2 21 0 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 22 0 6 <1	history1 21 <1 1 <1	history2 21 0 0 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		Current 22 0 6 <1 710	history1 21 <1 1 <1 792	history2 21 0 0 <1 736
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900	Current 22 0 6 <1 710 1498	history1 21 <1 1 <1 792 1367	history2 21 0 0 <1 736 1319
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100	Current 22 0 6 <1 710 1498 708	history1 21 <1 1 <1 792 1367 781	history2 21 0 0 <1 736 1319 697
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900	Current 22 0 6 <1 710 1498	history1 21 <1 1 <1 792 1367	history2 21 0 0 <1 736 1319
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200	current     22     0     6     <1     710     1498     708     802	history1 21 <1 1 <1 792 1367 781 876	history2 21 0 0 <1 736 1319 697 792
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	2900 1100 1200 4000 limit/base	Current 22 0 6 <1 710 1498 708 802 3060	history1 21 <1 1 <1 792 1367 781 876 3129	history2 21 0 0 <1 736 1319 697 792 2575
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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 ASTM D5185m	2900 1100 1200 4000 limit/base	current     22     0     6     <1     710     1498     708     802     3060     current	history1 21 <1 1 <1 792 1367 781 876 3129 history1	history2   21   0   <1   736   1319   697   792   2575   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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 ASTM D5185m	2900 1100 1200 4000 limit/base >20	current     22     0     6     <1     710     1498     708     802     3060     current     7	history1     21     <1     1     <1     792     1367     781     876     3129     history1     6	history2   21   0      1   736   1319   697   792   2575   history2   5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >20	current     22     0     6     <1     710     1498     708     802     3060     current     7     6	history1     21     <1     1     <1     792     1367     781     876     3129     history1     6     0	history2   21   0   0   <1   736   1319   697   792   2575   history2   5   <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >20 >20	current     22     0     6     <1     710     1498     708     802     3060     current     7     6     3	history1     21     <1     1     <1     792     1367     781     876     3129     history1     6     0     6     0     6	history2   21   0      0   <1   736   1319   697   792   2575   history2   5   <1   3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >20 >20 limit/base >3	current   22   0   6   <1   710   1498   708   802   3060   current   7   6   3   current   0.7	history1   21   <1   1   <1   792   1367   781   876   3129   history1   6   0   6   0   6   history1	history2   21   0   -   736   1319   697   792   2575   history2   5   <1   3   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >20 >20 limit/base >3	22   0   6   <1   710   1498   708   802   3060   current   7   6   3   current	history1   21   <1   1   <1   792   1367   781   876   3129   history1   6   0   6   0   6   0.8	history2   21   0   -   736   1319   697   792   2575   history2   5   <1   3   history2   0.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	29900 1100 1200 4000 imit/base >20 >20 imit/base >3 >20	current     22     0     6     <1     710     1498     708     802     3060     current     7     6     3     current     0.7     10.5	history1   21   <1   1   <1   792   1367   781   876   3129   history1   6   0   6   0   6   0.8   10.7	history2   21   0      1319   697   792   2575   history2   5   <1   3   history2   0.8   10.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D5185m	2900 1100 1200 4000 20 20 20 20 imit/base >3 >20 >3 >20 >30	current   22   0   6   <1   710   1498   708   802   3060   current   7   6   3   current   0.7   10.5   24.5	history1   21   <1   1   <1   792   1367   781   876   3129   history1   6   0   6   0.8   10.7   25.6	history2   21   0   <1   736   1319   697   792   2575   history2   5   <1   3   history2   0.8   10.8   24.8



# **OIL ANALYSIS REPORT**





nd)					VISUAL		method	limit/bas	se curr	ent	hi	story1		histo	ry2
					White Metal	scalar	*Visual	NONE	NONE		NO	NE		NONE	
		A.		1	Yellow Metal	scalar	*Visual	NONE	NONE		NO	NE		NONE	
	$\sim$				Precipitate	scalar	*Visual	NONE	NONE		NO	NE		NONE	
$\sim$	$\sim$	~			Silt	scalar	*Visual	NONE	NONE		NO	NE		NONE	
and the second second	-	-			Debris	scalar	*Visual	NONE	NONE		NO	NE		NONE	
			_	+	Sand/Dirt	scalar	*Visual	NONE	NONE		NO	NE		NONE	
Nov16/21	May20/22	Nov14/22	0ct10/23	Apr5/24	Appearance	scalar	*Visual	NORML	NORM			RML		NORN	
No	Mar	Nov	00	A	Odor	scalar	*Visual	NORML	NORM	1L		RML		NORN	1L
					Emulsified Water	scalar	*Visual	>0.2	NEG		NE			NEG	
				1	Free Water	scalar	*Visual		NEG		NE	G		NEG	
					FLUID PROPERT	IES	method	limit/bas	se curr	ent	hi	story1		histo	ry2
	~	~	$\sim$		Visc @ 100°C	cSt	ASTM D445	11.9	12.3		12.3	3		12.5	
				i.	GRAPHS										
					Iron (ppm)				Eead (p	pm)					
51	2	2		5	150 Severe				<sup>80</sup>						
Nov16/21	May20/22	Nov14/22	0ct10/23	V	100 Abnormal				60 - Severe						
2	Ma	Nc	0		E Abnormal				Abnormal						
					50	~			20						
					0	$\leq$			0						
					Jun1/20 0ct26/20 Mar8/21	Nov16/21	May20/22 Nov14/22 Oct10/23	Apr5/24	Jun1/20 0ct26/20	Mar8/21	Jul19/21	Nov16/21	May20/22	0ct10/23	
~						Nor	Nov Oct	A	0			No	May	Oct	<
					Aluminum (ppm)				Chromi	um (pj	om)				
					50 - Severe				10 Severe						
				_	40				8						
Nov16/21-	0/22	Nov14/22	0ct10/23 -	Lunc DA	and Abhorma				Abnormal						
Nov1	May20/22	Nov1	0ct1	V	20				2		~				
								4					2		
					Jun1/20 0ct26/20 Mar8/21	Nov16/21	May20/22 Nov14/22 Oct10/23	Apr5/24	Jun1/20 Oct26/20	Mar8/21	Jul19/21	Nov16/21	May20/22	0ct10/23	And DA
					_	2	N N O		-		7	2	Ň		
					Copper (ppm)				Silicon (	(ppm)					
					500-				Severe 30						
					400 <u>5</u> 300 - <u>Sever</u> e				Abnormal						
					200 Abnormal										
					100-				10-	-	~				
					Z1	/21	22	24	20 + 02	21	21+	21+	22	23	V.C
					Jun 1/20 Oct26/20 Mar8/21	Nov16/21	May20/22 Nov14/22 Oct10/23	Apr5/24	Jun1/20 Oct26/20	Mar8/21	Jul19/21	Nov16/21	May20/22	0ct10/23	And 7.0.4
					Viscosity @ 100°C		2 2 -		Base N	umber		_	2 4		
					<sup>16</sup>				12.0 -	annoen	1				
					14- Abnormal			Base Number (mg KOH/g)	10.0						
					(5-0012 #3			er (mg	6.0						
					10			Numb	4.0				$\sim$		
								ase	2.0						
					8/21 + 021 +	6/21	0/22 + 1/22 +	5/24	8/20 + 0.0	8/21	9/21-	6/21+	0/22	1/23	70
					Jun 1/20 Oct26/20 Mar8/21 Jul19/21	Nov16/21	May20/22 Nov14/22 Oct10/23	Apr5/24	Jun1/20 Oct26/20	Mar8/21	Jul19/21	Nov16/21	May20/22	0ct10/23	Anste /2.4
Laboratory Sample No. Lab Number Unique Number		o. Der ber	: 10978987	Rece Teste	ived :1 ed :1	·			DEN TRANSPORT - SPRUCE GROV ACHESON RD, ACHESON INDUSTRIAL PAR ACHESON, A CA T7X 6B Contact: Mathieu Carb						
Certificate	12267	Tes	t Packa	age	: MOB 2							Conta	act: Ma	thieu C	Carb

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Contact/Location: Mathieu Carby - LYNSPR

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