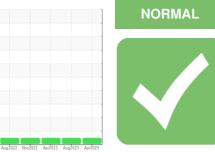


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

FREIGHTLINER 1167

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

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.

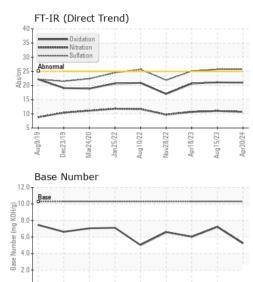
Fluid Condition

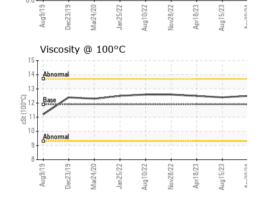
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0733178	WC0733121	WC0733064
Sample Date		Client Info		30 Apr 2024	15 Aug 2023	18 Apr 2023
Machine Age	kms	Client Info		551974	469870	410076
Oil Age	kms	Client Info		65000	65000	65000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>65	27	20	21
Chromium	ppm	ASTM D5185m	>5	2	2	2
Nickel	ppm	ASTM D5185m	>3	0	0	0
Titanium	ppm	ASTM D5185m	>5	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>35	8	6	11
Lead	ppm	ASTM D5185m	>10	<1	0	0
Copper	ppm	ASTM D5185m	>180	5	4	7
Tin	ppm	ASTM D5185m	>8	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 25	history1 16	history2 21
	ppm ppm		limit/base	25 <1		
Boron		ASTM D5185m	limit/base	25	16	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	25 <1	16 0	21 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	25 <1 <1	16 0 0	21 0 <1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	25 <1 <1 <1	16 0 0 <1	21 0 <1 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		25 <1 <1 <1 792 1489 762	16 0 21 875 1597 822	21 0 <1 <1 831 1428 738
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900	25 <1 <1 <1 <1 792 1489	16 0 0 <1 875 1597	21 0 <1 <1 831 1428 738 896
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100	25 <1 <1 <1 792 1489 762	16 0 21 875 1597 822	21 0 <1 <1 831 1428 738
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 ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base	25 <1 <1 <1 792 1489 762 887	16 0 0 <1 875 1597 822 988	21 0 <1 <1 831 1428 738 896
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2900 1100 1200 4000 limit/base	25 <1 <1 <1 792 1489 762 887 3382 current 5	16 0 0 <1 875 1597 822 988 3883 history1 4	21 0 <1 <1 831 1428 738 896 3592 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15	25 <1 <1 <1 792 1489 762 887 3382 current 5 4	16 0 0 <1 875 1597 822 988 3883 history1 4 <1	21 0 <1 <1 831 1428 738 896 3592 history2 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2900 1100 1200 4000 limit/base >15	25 <1 <1 <1 792 1489 762 887 3382 current 5	16 0 0 <1 875 1597 822 988 3883 history1 4	21 0 <1 <1 831 1428 738 896 3592 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15	25 <1 <1 792 1489 762 887 3382 current 5 4 5 5	16 0 0 <1 875 1597 822 988 3883 history1 4 <1	21 0 <1 (1 831 1428 738 896 3592 history2 6 3 5 5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15 >20	25 <1 <1 <1 792 1489 762 887 3382 current 5 4 5	16 0 0 <1 875 1597 822 988 3883 history1 4 <1 5	21 0 <1 <1 831 1428 738 896 3592 history2 6 3 5 5 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15 >20 limit/base	25 <1 <1 792 1489 762 887 3382 current 5 4 5 5	16 0 0 <1 875 1597 822 988 3883 history1 4 <1 5 history1	21 0 <1 (1 831 1428 738 896 3592 history2 6 3 5 5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15 >20 limit/base >3	25 <1 <1 <1 792 1489 762 887 3382 current 5 4 5 4 5 2 4 5 2 4 1.2	16 0 0 <1 875 1597 822 988 3883 history1 4 <1 5 history1 1	21 0 <1 <1 831 1428 738 896 3592 history2 6 3 5 5 history2 1
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	ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base >15 >20 limit/base >3 >20	25 <1 <1 <1 792 1489 762 887 3382 current 5 4 5 4 5 2 4 5 2 4 5 2 1.2 10.7	16 0 0 <1 875 1597 822 988 3883 history1 4 <1 5 history1 1 1 1 11.0	21 0 <1 <1 831 1428 738 896 3592 history2 6 3 5 history2 1 10.7
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	ASTM D5185m ASTM D5185m	2900 1100 1200 4000 imit/base >15 >20 imit/base >3 >20 >30	25 <1 <1 <1 792 1489 762 887 3382 current 5 4 5 5 4 5 current 1.2 10.7 25.7	16 0 0 <1 875 1597 822 988 3883 history1 4 <1 5 history1 1 1 11.0 25.7	21 0 <1 <1 831 1428 738 896 3592 history2 6 3 5 history2 1 10.7 25.1



OIL ANALYSIS REPORT





end)				VISUAL		method	limit/base	current	history1	history2
				White Metal Yellow Metal Precipitate	scalar scalar scalar	*Visual *Visual *Visual	NONE NONE NONE	NONE NONE NONE	NONE NONE NONE	NONE NONE NONE
-	\leq	_		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
				Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	APRIL OF THE OWNERS			Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Jan 25/22 . Aug 10/22 .	Nov28/22 -	Apr18/23 -	Aug15/23 . Apr30/24 .	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Jan <i>i</i> Augi	Novi	Apri	Augʻ	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
				Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		I		Free Water	scalar	*Visual		NEG	NEG	NEG
				FLUID PROPER	TIES	method	limit/base	current	history1	history2
\sim	~	-		Visc @ 100°C	cSt	ASTM D445	5 11.9	12.5	12.4	12.5
				GRAPHS						
				Iron (ppm)			3	Lead (ppm)	+	
/22 -	/22	1/23	6/23 -	150 + Severe			2	Severe		
Jan 25/22 Aug 10/22	Nov28/22	Apr18/23	Aug15/23	Ē 100			2 5 1			
0°C				Abnormal			e 1			
		-		50						
				Aug9/19 7 Dec23/19 7 Mar24/20 7	Aug10/22 +	Nov28/22 + Apr18/23 +	Apr30/24	Aug9/19	Jan 25/22 Aug 10/22 -	Apri 8/23 - Aug 15/23 - Apri30/24 -
				Aug Dec2 Mar2 Jan2	Aug1	Nov2 Apr1	Apr3	Aug Dec2 Mar2	Jan2 Aug1	Apr1 Aug1 Apr3
				Aluminum (ppm)			1	Chromium (p	pm)	
				60 - Severe			1	Courses		
							E			
Jan 25/22 Aug 10/22	Nov28/22	Apr18/23	Aug15/23	Abnormal			Шdd	Abnormal		
Jar Auç	Nov	Ap	Aug	20-						
				9/19 + 02/4 + 22/2	- 22/0	3/22 -	0/24		5/22 + 0/22 +	3/23 - 5/23 -
				Aug9/19 Dec23/19 Mar24/20	Aug10/22	Nov28/22 - Apr18/23 -	Apr30/24	Aug9/19 Dec23/19 Mar24/20	Jan 25/22 Aug 10/22	Apr18/23 Aug15/23 Apr30/24
				Copper (ppm)				Silicon (ppm)		
				500			4	Severe		
				400 Severe			3			
				돌.300 200 - Abnormal			<u></u> <u></u>	Abnormal		
				100			1		\sim	
				22	22	22 - 22		/19+- /19+-	22	23
				Aug9/19 Dec23/19 Mar24/20 Jan25/22	Aug10/22	Nov28/22 Apr18/23	Apr30/24	Aug9/19 Dec23/19 Mar24/20	Jan 25/22 Aug 10/22 Nov28/22	Apr18/23 Aug15/23 Apr30/24
				Viscosity @ 100°	С			Base Number	-	
				¹⁶			12. ≆10.	Base		
				14- Abnormal			9 Bu 8.			
				(0-001) 12- #3				1 I I	\sim	\sim
				10 - Abnormal			(0)H03 Bm back www 4. 2. 2			
				/19 +	122	122	0.	/19	122	/23 /23 /24
				Aug9/19 Dec23/19 Mar24/20 Jan25/22	Aug10/22	Nov28/22 Apr18/23	Apr30/24	Aug9/19 Dec23/19 Mar24/20	Jan 25/22 Aug 10/22	Apr18/23 Aug15/23 Apr30/24
Certificate L		Sar Lat Unio Tes	que Numbei it Package	: WearCheck USA - 50 : WC0733178 r : 06175718 r : 11021771 e : MOB 2 t, contact Customer Serv	Rece Teste Diagi	ived : 1 ed : 1 nosed : 1	0 May 2024 3 May 2024 3 May 2024 - Se	27340 AC	HESON RD, ACHES Contac	- SPRUCE GROVE ON INDUSTRIAL PARK ACHESON, AB CA T7X 6B1 ct: Mathieu Carby rby@lynden.com
* - Denc	otes tes	st me	thods tha	t are outside of the ISO aspecifications are based	17025 sco	ope of accre	ditation.	rule (JCGM 10		T: F:

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Contact/Location: Mathieu Carby - LYNSPR

Page 2 of 2