

OIL ANALYSIS REPORT

Sample Rating Trend



442201 - FREIGHTLINER TACK TRUCK

Diesel Engine Fluid PETRO CANADA 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

Metal levels are typical for a new component breaking in.

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.

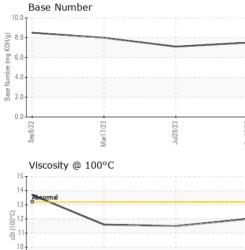
		Sep202	2 Mar2023	Jui2023 Or	t2023	
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		SBP0004862	SBP0004753	SBP0003710
Sample Date		Client Info		12 Oct 2023	28 Jul 2023	17 Mar 2023
Machine Age	hrs	Client Info		2219	1648	1020
Oil Age	hrs	Client Info		571	628	507
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	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	43	43
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	3	11	43
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base		history1 4	history2 16
	ppm ppm		limit/base	current 0 3	· · · · · ·	
Boron Barium	ppm	ASTM D5185m	limit/base	0	4	16
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	limit/base	0 3	4 1 57	16 0
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 3 58	4	16 0 59
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 3 58 1	4 1 57 <1	16 0 59 2
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 3 58 1 877	4 1 57 <1 863	16 0 59 2 840
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	0 3 58 1 877 994	4 1 57 <1 863 1102	16 0 59 2 840 1179
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	limit/base	0 3 58 1 877 994 883	4 1 57 <1 863 1102 913	16 0 59 2 840 1179 908
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	limit/base	0 3 58 1 877 994 883 1110	4 1 57 <1 863 1102 913 1164	16 0 59 2 840 1179 908 1126
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	limit/base	0 3 58 1 877 994 883 1110 2641	4 1 57 <1 863 1102 913 1164 2877	16 0 59 2 840 1179 908 1126 2779
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	limit/base	0 3 58 1 877 994 883 1110 2641 current	4 1 57 <1 863 1102 913 1164 2877 history1	16 0 59 2 840 1179 908 1126 2779 history2
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	limit/base >25	0 3 58 1 877 994 883 1110 2641 <u>current</u> 7	4 1 57 <1 863 1102 913 1164 2877 history1 10	16 0 59 2 840 1179 908 1126 2779 history2 8
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	limit/base >25	0 3 58 1 877 994 883 1110 2641 <u>current</u> 7 3	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1	16 0 59 2 840 1179 908 1126 2779 history2 8
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	limit/base >25 >20	0 3 58 1 877 994 883 1110 2641 current 7 3 4	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10	16 0 59 2 840 1179 908 1126 2779 history2 8 < <1 6
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	limit/base >25 >20 limit/base	0 3 58 1 877 994 883 1110 2641 <i>current</i> 7 3 4	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10 history1	16 0 59 2 840 1179 908 1126 2779 history2 8 < <1 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	0 3 58 1 877 994 883 1110 2641 <i>current</i> 7 3 4 <i>current</i> 0.7	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10 history1 1	16 0 59 2 840 1179 908 1126 2779 history2 8 < <1 6 history2 0.8
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	limit/base >25 >20 limit/base >3 >20	0 3 58 1 877 994 883 1110 2641 <u>current</u> 7 3 4 <u>current</u> 0.7 8.8 19.2	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10 history1 1 10 10	16 0 59 2 840 1179 908 1126 2779 history2 8 8 <1 6
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	limit/base >25 >20 limit/base >3 >20 >30 >30	0 3 58 1 877 994 883 1110 2641 <u>current</u> 7 3 4 <u>current</u> 0.7 8.8 19.2	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10 history1 1 10 20.8	16 0 59 2 840 1179 908 1126 2779 history2 8 <1 6 ×1 6 0.8 9.6 20.5
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 D7844 *ASTM D7624	limit/base >25 >20 limit/base >3 >20 >30 >30	0 3 58 1 877 994 883 1110 2641 <i>current</i> 7 3 4 <i>current</i> 0.7 8.8 19.2 <i>current</i>	4 1 57 <1 863 1102 913 1164 2877 history1 10 <1 10 history1 1 10.0 20.8 history1	16 0 59 2 840 1179 908 1126 2779 history2 8 8<16history20.89.620.5history2



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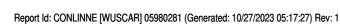
OIL ANALYSIS REPORT

VISUAL



Mar17/23

Certificate L2367		: WearCheck USA - : SBP0004862 : 05980281 : 10697576	Received Diagnose	501 Madison Ave., Cary, NC 27513 Received : 16 Oct 2023 Diagnosed : 17 Oct 2023 Diagnostician : Wes Davis <i>ice at 1-800-237-1369.</i>			Constructors Inc 60365 1815 Y Stree Lincoln, NI US 6850 Contact: Jack Linhar jackl@constructorslincoln.com		
		Sap 8/2/2 Bar 10-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-		Jui28/23		7.0 6.0 5.0 4.0 2.0 1.0 0.0 2.2 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	Mar17/23		
		Viscosity @ 100°	'C			Base Number			
		Sap 8/22 0 0		Jul28/23	Oct12/23				
		2001 150 100							
		Non-ferrous Met	als						
		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Jui28/23	0ct12/23				
		40 30 20			/				
Ju(28/23 +		Ferrous Alloys							
		Visc @ 100°C GRAPHS	cSt	ASTM D445		12.0	11.5	11.6	
		FLUID PROPER		method	limit/base		history1	history2	
		Free Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
3		Odor Emulsified Water	scalar scalar	*Visual *Visual	NORML	NORML NEG	NORML	NORML NEG	
- E2823	Jui20/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
		Silt Debris	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NONE NONE	
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	



Submitted By: Jack Linhart Page 2 of 2