

### **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

# **FREIGHTLINER 145**

### Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (11 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 INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0115426	PCA0102586	
Sample Date		Client Info		14 Jun 2024	17 Aug 2023	
Machine Age	mls	Client Info		302938	205188	
Oil Age	mls	Client Info		50000	48623	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS method limit/base current history1 history2						history2
Iron	ppm	ASTM D5185m	>80	60	46	
Chromium	ppm	ASTM D5185m	>5	2	2	
Nickel	ppm	ASTM D5185m	>2	<1	<1	
Titanium	ppm	ASTM D5185m		0	<1	
Silver	ppm	ASTM D5185m	>3	0	<1	
Aluminum	ppm	ASTM D5185m	>30	8	5	
Lead	ppm	ASTM D5185m	>30	<1	<1	
Copper	ppm	ASTM D5185m	>150	5	7	
Tin	ppm	ASTM D5185m	>5	<1	1	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		<1	0	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1 3	history2
	ppm ppm					history2 
Boron		ASTM D5185m	2	4	3	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	4 <1	3 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	4 <1 66	3 0 69	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	4 <1 66 1	3 0 69 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	4 <1 66 1 850	3 0 69 <1 1057	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	4 <1 66 1 850 1166	3 0 69 <1 1057 1170	   
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	2 0 50 0 950 1050 995	4 <1 66 1 850 1166 990	3 0 69 <1 1057 1170 1071	   
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	2 0 50 0 950 1050 995 1180	4 <1 66 1 850 1166 990 1045	3 0 69 <1 1057 1170 1071 1402	
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	4 <1 66 1 850 1166 990 1045 2376	3 0 69 <1 1057 1170 1071 1402 2987	
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	4 <1 66 1 850 1166 990 1045 2376 current	3 0 69 <1 1057 1170 1071 1402 2987 history1	     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 <b>method</b>	2 0 50 950 1050 995 1180 2600	4 <1 66 1 850 1166 990 1045 2376 current 8	3 0 69 <1 1057 1170 1071 1402 2987 history1 6	     history2
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 <b>method</b> ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b>	4 <1 66 1 850 1166 990 1045 2376 current 8 4	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20	4 <1 66 1 850 1166 990 1045 2376 current 8 4 8	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20 <b>limit/base</b>	4 <1 66 1 850 1166 990 1045 2376 current 8 4 8 4 8	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9 9	     history2    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 ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >20 20 limit/base >20	4 <1 66 1 850 1166 990 1045 2376 current 8 4 8 4 8 <u>current</u> 1.3	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9 9 history1 1.1	     history2  history2  history2
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	2 0 50 0 950 1050 995 1180 2600 <b>i</b> mit/base >20 <b>i</b> mit/base >20	4 <1 66 1 850 1166 990 1045 2376 current 8 4 8 4 8 <u>current</u> 1.3 13.0	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9 history1 1.1 1.2.5	     history2   history2
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	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b> >3 >20 >3 >20	4 <1 66 1 850 1166 990 1045 2376 current 8 4 8 4 8 <u>current</u> 1.3 13.0 26.9	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9 9 history1 1.1 1.2.5 24.6	     history2  history2  history2
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 20 20 20 20 20 20 20 20 20 20 20 20 2	4 <1 66 1 850 1166 990 1045 2376 Current 8 4 8 4 8 Current 1.3 13.0 26.9 Current	3 0 69 <1 1057 1170 1071 1402 2987 history1 6 0 9 history1 1.1 1.2.5 24.6 history1	     history2  history2  history2  history2

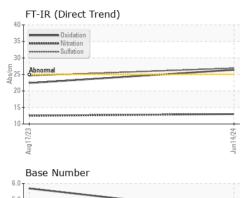


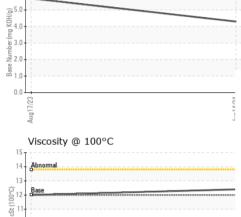
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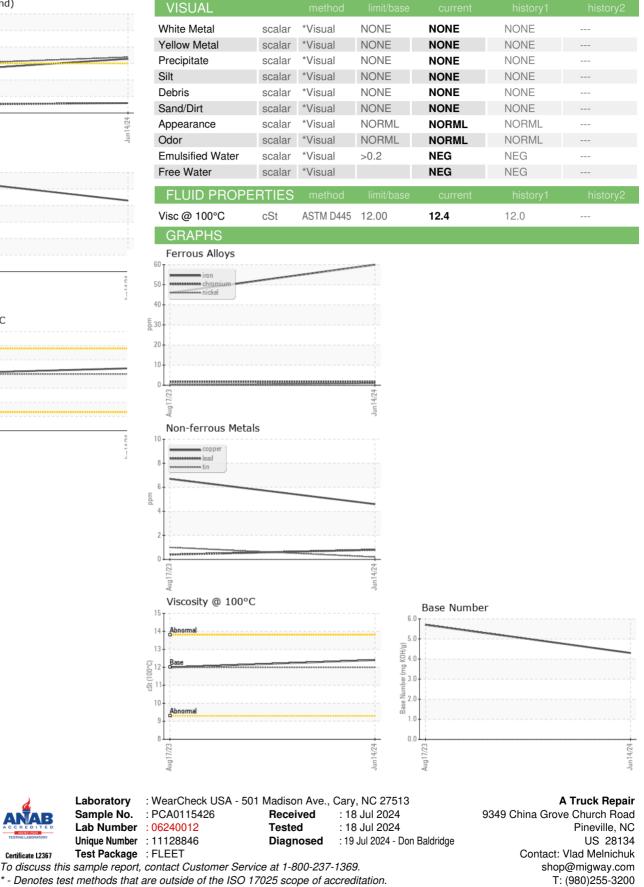
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## **OIL ANALYSIS REPORT**

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







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Submitted By: Vlad Melnichuk

Page 2 of 2

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