

# **OIL ANALYSIS REPORT**

Sample Rating Trend



# FREIGHTLINER 473918

Diesel Engine

## PETRO CANADA DURON SHP 10W30 (18 QTS)

## 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.

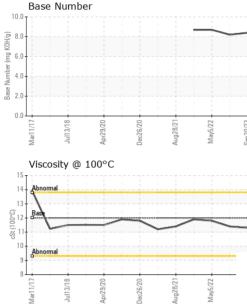
### Fluid Condition

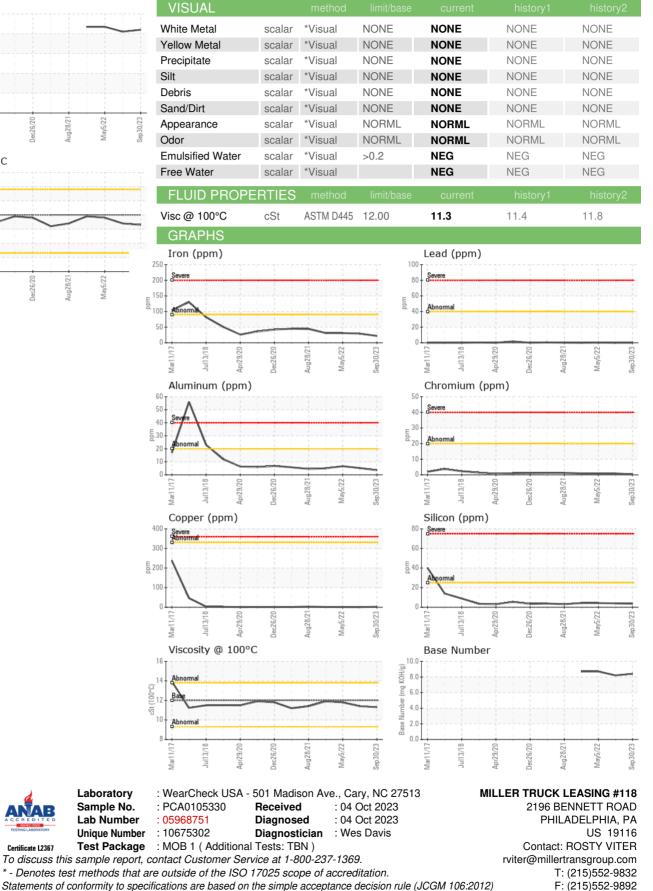
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0105330	PCA0085182	PCA0073276
Sample Date		Client Info		30 Sep 2023	14 Jan 2023	05 May 2022
Machine Age	mls	Client Info		275151	252568	231455
Oil Age	mls	Client Info		0	10000	8000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method	20.0	NEG	NEG	NEG
-						
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	22	29	31
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		0	3	2
Silver	ppm	ASTM D5185m	>2	0	<1	2
Aluminum	ppm	ASTM D5185m	>20	4	5	7
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m		2	<1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 5	history1 4	history2 19
	ppm ppm					
Boron		ASTM D5185m	2	5	4	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	5 0	4 1	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	5 0 63	4 1 57	19 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	5 0 63 <1	4 1 57 <1	19 0 55 <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	5 0 63 <1 1041	4 1 57 <1 848	19 0 55 <1 920
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	5 0 63 <1 1041 1275	4 1 57 <1 848 1094	19 0 55 <1 920 1249
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	5 0 63 <1 1041 1275 1104	4 1 57 <1 848 1094 976	19 0 55 <1 920 1249 1034
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 50 950 1050 995 1180	5 0 63 <1 1041 1275 1104 1377	4 1 57 <1 848 1094 976 1172	19 0 55 <1 920 1249 1034 1200
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	2 0 50 0 950 1050 995 1180 2600	5 0 63 <1 1041 1275 1104 1377 3171	4 1 57 <1 848 1094 976 1172 2794	19 0 55 <1 920 1249 1034 1200 2773
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	2 0 50 950 1050 995 1180 2600	5 0 63 <1 1041 1275 1104 1377 3171 current	4 1 57 <1 848 1094 976 1172 2794 history1	19 0 55 <1 920 1249 1034 1200 2773 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	5 0 63 <1 1041 1275 1104 1377 3171 current 4	4 1 57 <1 848 1094 976 1172 2794 history1 4	19 0 55 <1 920 1249 1034 1200 2773 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b>	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2	4 1 57 <1 848 1094 976 1172 2794 history1 4 2	19 0 55 <1 920 1249 1034 1200 2773 history2 4 <
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2 5	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 2 4	19 0 55 <1 920 1249 1034 1200 2773 history2 4 < <1 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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> >25 >20	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2 5 5 current	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 2 4 history1	19 0 55 <1 920 1249 1034 1200 2773 history2 4 <1 4 ×1 4
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 <i>limit/base</i> >25 >20 <i>limit/base</i>	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2 5 5 current 0.5	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 history1 0.6	19 0 55 <1 920 1249 1034 1200 2773 history2 4 <1 4 ×1 4 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	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >6 >20	5 0 63 <1 1041 1275 1104 1377 3171 <i>current</i> 4 2 5 <i>current</i> 0.5 8.8	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 history1 0.6 9.6	19 0 55 <1 920 1249 1034 1200 2773 history2 4 < <1 4
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 <b>imit/base</b> >20 <b>imit/base</b> >20	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2 5 current 0.5 8.8 19.4 current	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 2 4 history1 0.6 9.6 19.5 history1	19 0 55 <1 920 1249 1034 1200 2773 history2 4 < <1 4 //>
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 0 50 0 950 1050 995 1180 2600 2600 255 220 220 20 20 20 20 20 20 20 20 20 20 2	5 0 63 <1 1041 1275 1104 1377 3171 current 4 2 5 5 <u>current</u> 0.5 8.8 19.4	4 1 57 <1 848 1094 976 1172 2794 history1 4 2 4 history1 0.6 9.6 19.5	19 0 55 <1 920 1249 1034 1200 2773 <b>history2</b> 4 <1 4 <b>kistory2</b> 0.6 9.3 19.7



# **OIL ANALYSIS REPORT**





Certificate L2367

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