

## **OIL ANALYSIS REPORT**

Sample Rating Trend



### Machine Id 111044

Component Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- QTS)

#### DIAGNOSIS

#### Recommendation

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

#### 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.

			4p12022 14072022	Jan2023 Apr2023 Sep2023	Jan2024	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0113579	PCA0105761	PCA0105787
Sample Date		Client Info		05 Jan 2024	03 Nov 2023	18 Sep 2023
Machine Age	mls	Client Info		148726	141373	132602
Oil Age	mls	Client Info		7353	0	6690
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATI	ON	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	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	18	71	22
Chromium	ppm	ASTM D5185m	>20	0	1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	0 10	2
Lead	ppm	ASTM D5185m	>40	0	6	<1
Copper	ppm	ASTM D5185m	>330	<1	<b>A</b> 276	1
Tin	ppm	ASTM D5185m	>15	0	4	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
	ppm	method ASTM D5185m	limit/base	current 5	history1 94	history2 4
Boron	ppm ppm					
Boron Barium		ASTM D5185m	2	5	94	4
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	2 0	5 0	94 6	4 0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	5 0 66	94 6 11	4 0 60
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	5 0 66 0	94 6 11 3	4 0 60 0
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	5 0 66 0 1073	94 6 11 3 96	4 0 60 0 864
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 66 0 1073 1324	94 6 11 3 96 1140	4 0 60 0 864 1176
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 66 0 1073 1324 1180	94 6 11 3 96 1140 719	4 0 60 0 864 1176 1007
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	5 0 66 0 1073 1324 1180 1491	94 6 11 3 96 1140 719 961	4 0 60 0 864 1176 1007 1239
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 66 0 1073 1324 1180 1491 4155	94 6 11 3 96 1140 719 961 2700	4 0 60 0 864 1176 1007 1239 3149
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> 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	2 0 50 0 950 1050 995 1180 2600	5 0 66 0 1073 1324 1180 1491 4155 current	94 6 11 3 96 1140 719 961 2700 history1	4 0 60 0 864 1176 1007 1239 3149 history2
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 66 0 1073 1324 1180 1491 4155 <u>current</u> 3	94 6 11 3 96 1140 719 961 2700 history1 ▲ 39	4 0 60 0 864 1176 1007 1239 3149 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 66 0 1073 1324 1180 1491 4155 current 3 1 0	94 6 11 3 96 1140 719 961 2700 <b>history1</b> ▲ 39 5	4 0 60 0 864 1176 1007 1239 3149 history2 4 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	5 0 66 0 1073 1324 1180 1491 4155 current 3 1 0	94 6 11 3 96 1140 719 961 2700 history1 ▲ 39 5 7	4 0 60 0 864 1176 1007 1239 3149 history2 4 0 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN <sup>T</sup> 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 <b>limit/base</b> >25 >20	5 0 66 0 1073 1324 1180 1491 4155 current 3 1 0 0	94 6 11 3 96 1140 719 961 2700 history1 39 5 7 7	4 0 60 0 864 1176 1007 1239 3149 history2 4 0 2 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	5 0 66 0 1073 1324 1180 1491 4155 <u>current</u> 3 1 0 <u>current</u> 1.1	94 6 11 3 96 1140 719 961 2700 history1 3 3 5 7 7 history1 0.6	4 0 60 0 864 1176 1007 1239 3149 history2 4 0 2 <u>history2</u> 1.8
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 >25 >20 <b>i</b> mit/base >3 >20	5 0 66 0 1073 1324 1180 1491 4155 <b>current</b> 3 1 0 <b>current</b> 1.1 8.5 19.2	94 6 11 3 96 1140 719 961 2700 history1 ▲ 39 5 7 8 9 5 7 0.6 9.6	4 0 60 0 864 1176 1007 1239 3149 history2 4 0 2 <u>history2</u> 1.8 9.0
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> >25 <b>imit/base</b> >3 >20	5 0 66 0 1073 1324 1180 1491 4155 <b>current</b> 3 1 0 <b>current</b> 1.1 8.5 19.2	94 6 11 3 96 1140 719 961 2700 history1 3 3 5 7 7 history1 0.6 9.6 21.9	4 0 60 0 864 1176 1007 1239 3149 history2 4 0 2 <u>history2</u> 1.8 9.0 21.3



Base

Mav25/21

Inr20/77

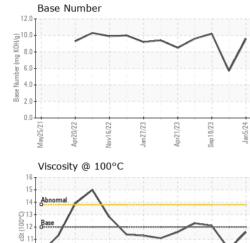
Nov16/22

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Sep18/23

# **OIL ANALYSIS REPORT**

VISUAL





Certificate L2367

Contact/Location: ED DAVIS - MILLOG