

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

#### 228292 Component Diesel Engine Fluid

PETRO CANADA DURON SHP 10W30 (--- 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	<b>IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110688	PCA0097356	PCA0083894
Sample Date		Client Info		31 Mar 2024	25 Nov 2023	26 Feb 2023
Machine Age	mls	Client Info		130758	109102	61301
Oil Age	mls	Client Info		21656	47801	61301
Oil Changed		Client Info		Not Changd	N/A	Changed
Sample Status				NORMAL	NORMAL	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	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	20	42	59
Chromium	ppm	ASTM D5185m	>20	2	3	3
Nickel	ppm	ASTM D5185m	>4	<1	<1	1
Titanium	ppm	ASTM D5185m		53	1	2
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	16	38	48
Lead	ppm	ASTM D5185m	>40	<1	2	3
Copper	ppm	ASTM D5185m	>330	115	230	346
Tin	ppm	ASTM D5185m	>15	2	4	7
Vanadium	ppm	ASTM D5185m		1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	0 history2
Cadmium ADDITIVES Boron	ppm ppm	ASTM D5185m method ASTM D5185m	limit/base	<1 current 45	0 history1 3	0 history2 19
Cadmium ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base 2 0	<1 current 45 0	0 history1 3 0	0 history2 19 0
Cadmium ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50	<1 current 45 0 22	0 history1 3 0 60	0 history2 19 0 41
Cadmium ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0	<1 current 45 0 22 1	0 history1 3 0 60 2	0 history2 19 0 41 5
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950	<1 current 45 0 22 1 545	0 history1 3 0 60 2 989	0 history2 19 0 41 5 514
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050	<1 45 0 22 1 545 1564	0 history1 3 0 60 2 989 1359	0 history2 19 0 41 5 514 1745
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050 995	<1 <u>current</u> 45 0 22 1 545 1564 920	0 history1 3 0 60 2 989 1359 1043	0 history2 19 0 41 5 514 1745 695
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180	<1 45 0 22 1 545 1564 920 1158	0 history1 3 0 60 2 989 1359 1043 1246	0 history2 19 0 41 5 514 1745 695 924
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600	<1 45 0 22 1 545 1564 920 1158 3148	0 history1 3 0 60 2 989 1359 1043 1246 2354	0 history2 19 0 41 5 514 1745 695 924 1828
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 2 0 50 0 950 1050 995 1180 2600	<1 current 45 0 22 1 545 1564 920 1158 3148 current	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1	0 history2 19 0 41 5 514 1745 695 924 1828 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	limit/base 2 0 5 0 9 5 0 9 5 0 9 5 0 1 0 9 5 1 1 8 0 2 6 0 limit/base > 25	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8	0 history1 3 0 60 2 989 1359 1043 1246 2354 2354 history1 5	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	limit/base 2 0 5 0 9 5 0 9 5 0 9 5 0 1 0 5 0 9 5 1 1 8 0 2 6 0 1 1 8 2 6 0 1 1 8 2 5 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8 2	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7
Cadmium ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base 2 0 5 0 9 5 0 9 5 0 9 5 0 9 5 1 1 8 0 2 6 0 1 1 8 2 5 2 5 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8 2 33	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 3 76	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109
Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	limit/base 2 0 5 0 9 5 0 9 5 0 1 0 5 0 9 5 0 1 1 8 0 2 6 0 1 1 8 0 2 5 2 5 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8 2 33 current	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 history1	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m	imit/base 2 0 50 0 950 1050 995 1180 995 1180 2600 imit/base >20 imit/base >3	<1 45 0 22 1 545 1564 920 1158 3148 Current 8 2 33 Current 0.4	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 history1 0.8	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 history2 0.8
Cadmium ADDITIVES 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 method ASTM D5185m ASTM D5185m	<pre>imit/base 2 0 5 0 5 0 95 0 105 0 95 1180 2600  imit/base &gt;20 imit/base &gt;3 &gt;20</pre>	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8 2 33 current 0.4 8.6	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 history1 0.8 10.2	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 7 109 history2 0.8 12.4
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m	imit/base       2       0       50       0       950       1050       995       1180       2600       imit/base       >20       >3       >20	<1 current 45 0 22 1 545 1564 920 1158 3148 current 8 2 33 current 0.4 8.6 20.7	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 5 3 76 0.8 10.2 2.2.1	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 history2 0.8 12.4 24.2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185	imit/base 2 0 5 0 9 5 0 9 5 0 9 5 1 1 8 0 9 5 1 1 8 0 1 1 8 0 1 1 1 1 1 1 1 1 1 1 1 1	<1 <ur> <li>&lt;1</li> <li>current</li> <li>45</li> <li>0</li> <li>22</li> <li>1</li> <li>545</li> <li>1564</li> <li>920</li> <li>1158</li> <li>3148</li> <li>current</li> <li>8</li> <li>2</li> <li>33</li> <li>current</li> <li>0.4</li> <li>8.6</li> <li>20.7</li> <li>current</li> <li>current</li></ur>	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 history1 0.8 10.2 22.1 history1	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 7 109 history2 0.8 12.4 24.2 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANT Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	imit/base   2   0   50   0   950   1050   995   1180   2600   imit/base   >20   imit/base   >20   30   >20   imit/base   >20   imit/base   >20   imit/base   >20   20   imit/base   >20   20   >20   20	<1 <ur> <li>&lt;1</li> <li>current</li> <li>45</li> <li>0</li> <li>22</li> <li>1</li> <li>545</li> <li>1564</li> <li>920</li> <li>1158</li> <li>3148</li> <li>current</li> <li>8</li> <li>2</li> <li>33</li> <li>current</li> <li>0.4</li> <li>8.6</li> <li>20.7</li> <li>current</li> <li>16.6</li> <li></li> </ur>	0 history1 3 0 60 2 989 1359 1043 1246 2354 history1 5 3 76 history1 0.8 10.2 22.1 history1 21.1	0 history2 19 0 41 5 514 1745 695 924 1828 history2 9 7 109 history2 0.8 12.4 24.2 history2 27.4



# **OIL ANALYSIS REPORT**







Lab Number Unique Number : 10965703

Laboratory

Sample No.

Diagnosed : 10 Apr 2024 - Jonathan Hester Test Package : MOB 1 (Additional Tests: TBN) To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Report Id: MILLAN [WUSCAR] 06140895 (Generated: 04/10/2024 10:48:51) Rev: 1

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