

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id 1926710

Component Diesel Engine Fluid

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

## 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.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0102775	PCA0094874	PCA0082602
Sample Date		Client Info		16 Aug 2023	22 Mar 2023	04 Nov 2022
Machine Age	mls	Client Info		320916	320916	320916
Oil Age	mls	Client Info		320916	320916	41000
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT		and the set	1	-		-
	ION	method	limit/base	current	history1	history2
Fuel			>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	30	36	66
Chromium	ppm	ASTM D5185m	>20	<1	<1	2
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	6
Lead	ppm	ASTM D5185m	>40	2	1	4
Copper	ppm	ASTM D5185m	>330	7	6	8
Tin	ppm	ASTM D5185m	>15	1	<1	2
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 0	history1 0	history2 <1
	ppm ppm					
Boron		ASTM D5185m	2	0	0	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	0 0	0	<1 8
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 0 62	0 0 62	<1 8 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	0 0 62 <1	0 0 62 <1	<1 8 56 <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	0 0 62 <1 946	0 0 62 <1 898	<1 8 56 <1 877
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	0 0 62 <1 946 1133	0 0 62 <1 898 1006	<1 8 56 <1 877 1069
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 50 950 1050 995	0 0 62 <1 946 1133 960	0 0 62 <1 898 1006 869	<1 8 56 <1 877 1069 951
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	0 0 62 <1 946 1133 960 1217	0 0 62 <1 898 1006 869 1186	<1 8 56 <1 877 1069 951 1199
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	0 0 62 <1 946 1133 960 1217 3138	0 0 62 <1 898 1006 869 1186 2779	<1 8 56 <1 877 1069 951 1199 2477
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	0 0 62 <1 946 1133 960 1217 3138 current	0 0 62 <1 898 1006 869 1186 2779 history1	<1 8 56 <1 877 1069 951 1199 2477 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	0 0 62 <1 946 1133 960 1217 3138 current 5	0 0 62 <1 898 1006 869 1186 2779 history1 5	<1 8 56 <1 877 1069 951 1199 2477 history2 7
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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	0 0 62 <1 946 1133 960 1217 3138 current 5 20	0 0 62 <1 898 1006 869 1186 2779 history1 5 17	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11
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 50 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	0 0 62 <1 946 1133 960 1217 3138 current 5 20 2 2 2 current	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0 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> >25 -20 <b>limit/base</b>	0 0 62 <1 946 1133 960 1217 3138 <u>current</u> 5 20 2 2 2 <u>current</u> 0.5	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1 0.6	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	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> >25 >20 <b>limit/base</b>	0 0 62 <1 946 1133 960 1217 3138 current 5 20 2 2 2 current	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0 history2 0.9
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 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	0 0 62 <1 946 1133 960 1217 3138 <i>current</i> 5 20 2 2 20 2 <i>current</i> 0.5 11.9	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1 0.6 10.9 23.9	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0 history2 0.9 16.5 31.1
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 D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	0 0 62 <1 946 1133 960 1217 3138 <i>current</i> 5 20 2 2 <i>current</i> 0.5 11.9 24.5	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1 0.6 10.9 23.9 history1	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0 history2 0.9 16.5 31.1 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> >25 <b>imit/base</b> >3 >20	0 0 62 <1 946 1133 960 1217 3138 <u>current</u> 5 20 2 2 2 <u>current</u> 0.5 11.9 24.5	0 0 62 <1 898 1006 869 1186 2779 history1 5 17 3 history1 0.6 10.9 23.9	<1 8 56 <1 877 1069 951 1199 2477 history2 7 11 0 history2 0.9 16.5 31.1



Abnorm

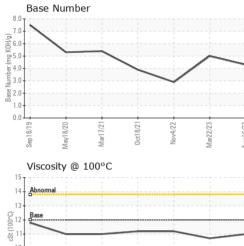
Sep18/15

May18/20

Mar17/21

# **OIL ANALYSIS REPORT**

VISUAL



Nov4/22

Dct18/21



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

Certificate L2367

Submitted By: KEVIN HOOKS

Page 2 of 2