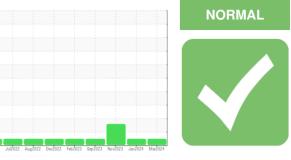


# **OIL ANALYSIS REPORT**

T

SAMPLE INFORMATION method

Sample Rating Trend



Machine Id **721564** 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 acceptable for the time in service.

SAMPLE INFORM		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		PCA0120723	PCA0117061	PCA0113376
Sample Date		Client Info		22 Mar 2024	03 Jan 2024	21 Nov 2023
Machine Age	mls	Client Info		343124	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
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		ASTM D5185m	>100	65	43	88
Chromium	ppm	ASTM D5185m	>20	3	43	4
Nickel	ppm		>20	ر <1	0	
	ppm	ASTM D5185m	>4			<1
Titanium Silver	ppm	ASTM D5185m ASTM D5185m	>3	<1	<1 0	<1 <1
	ppm			0	4	7
Aluminum	ppm	ASTM D5185m	>20	6		
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	9	8	8
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	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 2	history1 3	history2 11
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	2	3	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0 50	2 0	3 0	11 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	2 0 73	3 0 67	11 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	2 0 73 <1	3 0 67 0	11 0 62 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	2 0 73 <1 1066	3 0 67 0 914	11 0 62 1 854
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	2 0 73 <1 1066 1359	3 0 67 0 914 1116	11 0 62 1 854 1428
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	2 0 73 <1 1066 1359 1195	3 0 67 0 914 1116 1049	11 0 62 1 854 1428 1138
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	2 0 73 <1 1066 1359 1195 1403	3 0 67 0 914 1116 1049 1230	11 0 62 1 854 1428 1138 1412
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	2 0 73 <1 1066 1359 1195 1403 2954 current	3 0 67 0 914 1116 1049 1230 2697 history1	11 0 62 1 854 1428 1138 1412 2598 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 <b>method</b>	2 0 50 950 1050 995 1180 2600	2 0 73 <1 1066 1359 1195 1403 2954 current 7	3 0 67 0 914 1116 1049 1230 2697 history1 5	11 0 62 1 854 1428 1138 1412 2598 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 73 <1 1066 1359 1195 1403 2954 current	3 0 67 0 914 1116 1049 1230 2697 history1	11 0 62 1 854 1428 1138 1412 2598 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 >20	2 0 73 <1 1066 1359 1195 1403 2954 current 7 3 6	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5	11 0 62 1 854 1428 1428 1428 1412 2598 history2 5 4 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 <b>Imit/base</b>	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i>	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 5 history1	11 0 62 1 854 1428 1138 1428 1438 1412 2598 <b>history2</b> 5 4 9 <b>history2</b>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 5 history1 1.3	111 0 62 1 854 1428 1138 1428 1438 1412 2598 <b>history2</b> 5 4 9 <b>history2</b> 2.8
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 <b>TS</b> ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7 14.6	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 0 5 history1 1.3 12.2	111 0 62 1 854 1428 1138 1412 2598 history2 5 4 9 <u>history2</u> 2.8 19.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>Imit/base</b> >25 >20 <b>Imit/base</b> >3	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 5 history1 1.3	111 0 62 1 854 1428 1138 1428 1438 1412 2598 <b>history2</b> 5 4 9 <b>history2</b> 2.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Solicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7 14.6	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 0 5 history1 1.3 12.2	111 0 62 1 854 1428 1138 1412 2598 history2 5 4 9 <u>history2</u> 2.8 19.3
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 20 <b>imit/base</b> >3 >20	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7 14.6 28.4	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 5 0 5 5 history1 1.3 12.2 24.9	111 0 62 1 854 1428 1138 1412 2598 <b>history2</b> 5 4 9 <b>history2</b> 2.8 19.3 38.8
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 ASTM D7844 *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	2 0 73 <1 1066 1359 1195 1403 2954 <i>current</i> 7 3 6 <i>current</i> 1.7 14.6 28.4 <i>current</i>	3 0 67 0 914 1116 1049 1230 2697 history1 5 0 5 5 history1 1.3 12.2 24.9 history1	11 0 62 1 854 1428 1428 1412 2598 history2 5 4 9 history2 2.8 19.3 38.8 history2



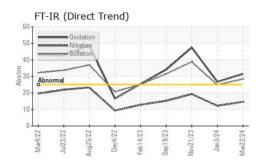
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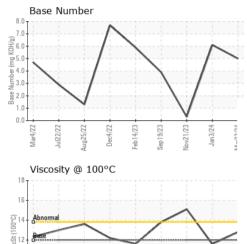
ug25/22 122/22

Dar4/77 ah14/22

Mar4/22

# **OIL ANALYSIS REPORT**





tep19/23 -

an3/24



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

St (100°C)

Laboratory

Sample No.

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

Report Id: MILRUT [WUSCAR] 06142713 (Generated: 04/11/2024 16:08:05) Rev: 1

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