

OIL ANALYSIS REPORT

SAMPLE INFORMATION

Sample Rating Trend

NORMAL



Plymouth & Brockton

428

Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (39 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

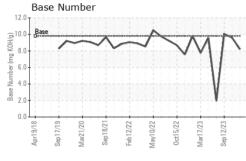
Fluid Condition

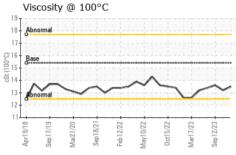
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		PCA0110057	PCA0104684	PCA0083330
Sample Date		Client Info		31 Jan 2024	23 Nov 2023	12 Sep 2023
Machine Age	mls	Client Info		332441	321041	310793
Oil Age	mls	Client Info		24000	12000	24000
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	43	60	19
Chromium	ppm	ASTM D5185m	>5	1	1	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	12	5
Lead	ppm	ASTM D5185m	>150	3	1	<1
Copper	ppm	ASTM D5185m	>90	2	<1	2
Tin	ppm	ASTM D5185m	>5	<1	0	<1
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 5	history1	history2
	ppm ppm	ASTM D5185m			•	•
Boron		ASTM D5185m	0	5	6	9
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 3	6	9
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 3 64	6 0 61	9 0 59
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 3 64 0	6 0 61 0	9 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 3 64 0 961	6 0 61 0 1059	9 0 59 <1 944
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	5 3 64 0 961 1095	6 0 61 0 1059 1204	9 0 59 <1 944 1127
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 ASTM D5185m	0 0 60 0 1010 1070 1150	5 3 64 0 961 1095 1042	6 0 61 0 1059 1204 1171	9 0 59 <1 944 1127 1045
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 ASTM D5185m	0 0 60 0 1010 1070 1150	5 3 64 0 961 1095 1042 1249	6 0 61 0 1059 1204 1171 1528	9 0 59 <1 944 1127 1045
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	5 3 64 0 961 1095 1042 1249 3280	6 0 61 0 1059 1204 1171 1528 3391	9 0 59 <1 944 1127 1045 1294 3115
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	5 3 64 0 961 1095 1042 1249 3280 current	6 0 61 0 1059 1204 1171 1528 3391 history1	9 0 59 <1 944 1127 1045 1294 3115 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	5 3 64 0 961 1095 1042 1249 3280 current	6 0 61 0 1059 1204 1171 1528 3391 history1	9 0 59 <1 944 1127 1045 1294 3115 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	5 3 64 0 961 1095 1042 1249 3280 current 7	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20	9 0 59 <1 944 1127 1045 1294 3115 history2 4
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	0 0 60 0 1010 1150 1270 2060 limit/base >35	5 3 64 0 961 1095 1042 1249 3280 current 7 4	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20	9 0 59 <1 944 1127 1045 1294 3115 history2 4 8
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35	5 3 64 0 961 1095 1042 1249 3280 current 7 4 2	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20 0	9 0 59 <1 944 1127 1045 1294 3115 history2 4 8 0 history2
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 method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base	5 3 64 0 961 1095 1042 1249 3280 current 7 4 2 current 0.6	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20 0 history1 0.6	9 0 59 <1 944 1127 1045 1294 3115 history2 4 8 0 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1150 1270 2060 limit/base >35 >20 limit/base	5 3 64 0 961 1095 1042 1249 3280 current 7 4 2 current 0.6 10.7	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20 0 history1 0.6 9.6	9 0 59 <1 944 1127 1045 1294 3115 history2 4 8 0 history2 0.5 8.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D76145	0 0 0 0 1010 1070 1150 1270 2060 limit/base >35 >20 limit/base >7.5 >20 >30	5 3 64 0 961 1095 1042 1249 3280 current 7 4 2 current 0.6 10.7 21.9	6 0 61 0 1059 1204 1171 1528 3391 history1 6 20 0 history1 0.6 9.6 20.5	9 0 59 <1 944 1127 1045 1294 3115 history2 4 8 0 history2 0.5 8.4 19.8



OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

FLUID PROP	ERIIES	method			riistory i	History
Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.2	13.6

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Certificate L2367

Laboratory Sample No.

Lab Number : 06094392 Unique Number : 10887245

Test Package : MOB 2

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0110057

Received Tested Diagnosed

: 20 Feb 2024 : 21 Feb 2024

: 21 Feb 2024 - Wes Davis

US 02360 Contact: Donald Pelpquin Dpeloquin@P-B.com

PLYMOUTH & BROCKTON

8 INDUSTRIAL PARK RD

T: (508)732-6039 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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.

F: (508)732-6091

PLYMOUTH, MA