

# **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id FREIGHTLINER 583538 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (40 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	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0117056	PCA0106294	PCA0097987
Sample Date		Client Info		29 Jan 2024	04 Oct 2023	02 Jun 2023
Machine Age	mls	Client Info		282781	269614	252691
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI	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 METALS	S	method	limit/base	current	history1	history2
Iron	ppm		>65	25	16	35
Chromium	ppm	ASTM D5185m	>5	1	2	2
Nickel	ppm	ASTM D5185m	>3	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>35	9	8	20
Lead	ppm	ASTM D5185m		0	<1	<1
Copper	ppm	ASTM D5185m		6	4	9
Tin	ppm	ASTM D5185m	>8	<1	<1	2
Vanadium	ppm	ASTM D5185m	20	0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
	ppm					
Boron	ppm ppm	ASTM D5185m	2	0	1	history2 9 0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	0 2	1 0	9 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	0 2 70	1 0 69	9
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	0 2 70 <1	1 0	9 0 94 2
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 2 70	1 0 69 <1 1072	9 0 94
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 2 70 <1 997	1 0 69 <1	9 0 94 2 992 1193
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	0 2 70 <1 997 1120	1 0 69 <1 1072 1118	9 0 94 2 992
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 995	0 2 70 <1 997 1120 1122	1 0 69 <1 1072 1118 1121	9 0 94 2 992 1193 1064
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	0 2 70 <1 997 1120 1122 1236	1 0 69 <1 1072 1118 1121 1448	9 0 94 2 992 1193 1064 1370
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 50 950 1050 995 1180 2600	0 2 70 <1 997 1120 1122 1236 3114	1 0 69 <1 1072 1118 1121 1448 3240	9 0 94 2 992 1193 1064 1370 3339
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 2 70 <1 997 1120 1122 1236 3114 current	1 0 69 <1 1072 1118 1121 1448 3240 history1	9 0 94 2 992 1193 1064 1370 3339 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 limit/base >15	0 2 70 <1 997 1120 1122 1236 3114 <i>current</i> 4	1 0 69 <1 1072 1118 1121 1448 3240 history1 4	9 0 94 2 992 1193 1064 1370 3339 history2 11
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >15	0 2 70 <1 997 1120 1122 1236 3114 current 4 0	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2	9 0 94 2 992 1193 1064 1370 3339 history2 11 3
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> >15 >20	0 2 70 <1 997 1120 1122 1236 3114 current 4 0 16	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2 12	9 0 94 2 992 1193 1064 1370 3339 history2 11 3 31
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> >20 <b>limit/base</b> >3	0 2 70 <1 997 1120 1122 1236 3114 <i>current</i> 4 0 16 <i>current</i>	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2 12 12 history1	9 0 94 2 992 1193 1064 1370 3339 history2 11 3 31 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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20 <b>limit/base</b> >3	0 2 70 <1 997 1120 1122 1236 3114 <i>current</i> 4 0 16 <i>current</i>	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2 12 12 history1 1.1	9 0 94 2 992 1193 1064 1370 3339 history2 11 3 31 history2 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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >15 >20 <b>limit/base</b> >3 >20	0 2 70 <1 997 1120 1122 1236 3114 <i>current</i> 4 0 16 <i>current</i> 1.5 9.6	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2 12 history1 1.1 8.2	9 0 94 2 992 1193 1064 1370 3339 history2 11 3 31 history2 1.8 1.8 10.5
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 <b>TS</b> ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >20 <b>imit/base</b> >3 >20	0 2 70 <1 997 1120 1122 1236 3114 <i>current</i> 4 0 16 <i>current</i> 1.5 9.6 22.1	1 0 69 <1 1072 1118 1121 1448 3240 history1 4 2 12 12 history1 1.1 8.2 19.7	9 0 94 2 992 1193 1064 1370 3339 history2 11 3 31 history2 1.8 10.5 24.9



cSt (100°C)

Abn

Apr13/18

Jan18/22

C(12/10)

20/02 mm

# **OIL ANALYSIS REPORT**

scalar

scalar

\*Visual

\*Visual

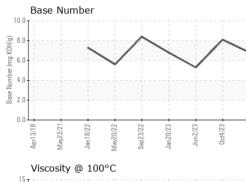
NONE

NONE

VISUAL

White Metal

Yellow Metal





NONE

NONE

NONE

NONE

NONE

NONE

\* - 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)

Certificate L2367

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