

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend





#### Component Diesel Engine

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

### 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 INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0078369	WC0594316	WC0570221
Sample Date		Client Info		16 Aug 2023	18 May 2022	09 Jun 2021
Machine Age	mls	Client Info		0	0	178695
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	17	12	13
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m		0	<1	<1
Aluminum	ppm	ASTM D5185m	>30	7	3	4
Lead	ppm	ASTM D5185m	>30	<1	<1	<1
Copper	ppm	ASTM D5185m	>30	7	4	4
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Antimony	ppm	ASTM D5185m				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	history1 4	history2 6
	ppm ppm					
Boron		ASTM D5185m	2	1	4	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	1 2	4	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	1 2 70	4 0 59	6 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	1 2 70 <1	4 0 59 <1	6 0 63 <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	1 2 70 <1 1073	4 0 59 <1 999	6 0 63 <1 952
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	1 2 70 <1 1073 1233	4 0 59 <1 999 1139	6 0 63 <1 952 1084
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	2 0 50 0 950 1050 995	1 2 70 <1 1073 1233 1147	4 0 59 <1 999 1139 1004	6 0 63 <1 952 1084 1010
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	1 2 70 <1 1073 1233 1147 1418	4 0 59 <1 999 1139 1004 1247	6 0 63 <1 952 1084 1010 1303
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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600	1 2 70 <1 1073 1233 1147 1418 3338	4 0 59 <1 999 1139 1004 1247 2511	6 0 63 <1 952 1084 1010 1303 2446 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m 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 Limit/base	1 2 70 <1 1073 1233 1147 1418 3338 current	4 0 59 <1 999 1139 1004 1247 2511 history1	6 0 63 <1 952 1084 1010 1303 2446 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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base	1 2 70 <1 1073 1233 1147 1418 3338 current 5	4 0 59 <1 999 1139 1004 1247 2511 history1 3	6 0 63 <1 952 1084 1010 1303 2446 history2 2
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 ASTM D5185m <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 Limit/base	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7	4 0 59 <1 999 1139 1004 1247 2511 <b>history1</b> 3 1	6 0 63 <1 952 1084 1010 1303 2446 history2 2 1
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> >30	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7 12	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1	6 0 63 <1 952 1084 1010 1303 2446 history2 2 1 3
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >30 >20 <b>imit/base</b> >3	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7 12 current 0.8 10.2	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1 <1 history1 0.6 8.8	6 0 63 <1 952 1084 1010 1303 2446 history2 2 2 1 3 <i>history2</i> 0.6 9.4
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>imit/base</b> >30 >20 <b>imit/base</b> >3	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7 12 current 0.8	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1 <1 history1 0.6	6 0 63 <1 952 1084 1010 1303 2446 history2 2 1 3 3 history2 0.6
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 t ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >30 <b>limit/base</b> >20	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7 12 current 0.8 10.2	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1 <1 history1 0.6 8.8	6 0 63 <1 952 1084 1010 1303 2446 history2 2 1 3 <i>history2</i> 0.6 9.4
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 50 950 1050 995 1180 2600 <b>imit/base</b> >30 <b>imit/base</b> >3 20 <b>imit/base</b>	1 2 70 <1 1073 1233 1147 1418 3338 current 5 7 12 current 0.8 10.2 21.8	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1 <1 history1 0.6 8.8 20.0	6 0 63 <1 952 1084 1010 1303 2446 <b>history2</b> 2 1 3 <b>history2</b> 0.6 9.4 21.1
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >30 20 <b>imit/base</b> >3 >20 >30	1 2 70 <1 1073 1233 1147 1418 3338 Current 5 7 12 Current 0.8 10.2 21.8 Current	4 0 59 <1 999 1139 1004 1247 2511 history1 3 1 <1 <1 history1 0.6 8.8 20.0 history1	6 0 63 <1 952 1084 1010 1303 2446 history2 2 1 3 <i>history2</i> 0.6 9.4 21.1 <i>history2</i>



cSt (100°C) Ba

Abnorm

# **OIL ANALYSIS REPORT**

\*Visual

scalar

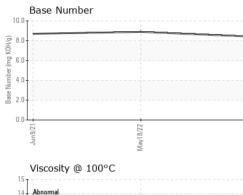
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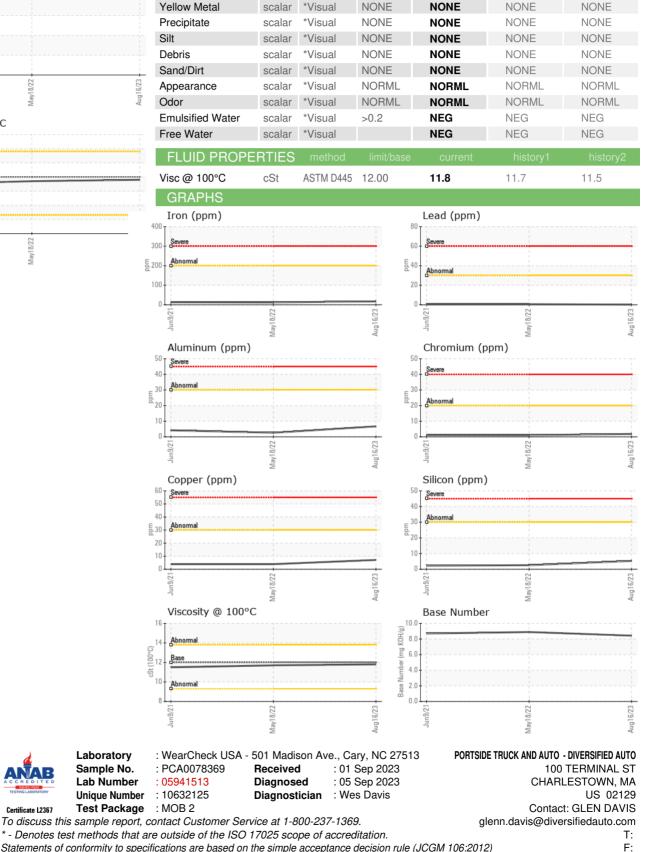
NONE

VISUAL

White Metal



Mav18/22



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

Certificate L2367

NONE