

## **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id 562 (S/N 1NPCL7EX0K0254176) Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0069604	PCA0069261	PCA0069234
Sample Date		Client Info		19 May 2023	04 Nov 2022	19 Sep 2022
Machine Age	hrs	Client Info		0	3951	3951
Oil Age	hrs	Client Info		336	3429	3429
Oil Changed		Client Info		Not Changd	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>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	8	12	16
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	3	3
Lead	ppm	ASTM D5185m	>40	0	1	3
Copper	ppm	ASTM D5185m	>330	<1	2	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
oudinidini	ppm			U	0	-
ADDITIVES	ppm	method	limit/base	current	history1	history2
	ppm		limit/base	-		-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 4	history1 97	history2 7
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 4 0	history1 97 0	history2 7 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 4 0 66	history1 97 0 64	history2 7 0 65
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 4 0 66 <1	history1 97 0 64 <1	history2 7 0 65 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 4 0 66 <1 1048	history1 97 0 64 <1 897	history2 7 0 65 <1 904
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current     4     0     66     <1     1048     1213	history1 97 0 64 <1 897 1236	history2 7 0 65 <1 904 1202
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150	Current 4 0 66 <1 1048 1213 1151	history1 97 0 64 <1 897 1236 1047	history2 7 0 65 <1 904 1202 1017
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current     4     0     66     <1     1048     1213     1151     1381	history1 97 0 64 <1 897 1236 1047 1279	history2 7 0 65 <1 904 1202 1017 1251
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current 4 0 66 <1 1048 1213 1151 1381 3979	history1 97 0 64 <1 897 1236 1047 1279 3596	history2 7 0 65 <1 904 1202 1017 1251 3536
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     4     0     66     <1     1048     1213     1151     1381     3979     current	history1   97   0   64   <1   897   1236   1047   1279   3596   history1	history2     7     0     65     <1     904     1202     1017     1251     3536     history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6	history2     7     0     65     <1     904     1202     1017     1251     3536     history2     7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method     ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 imit/base >25	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1	history2     7     0     65     <1     904     1202     1017     1251     3536     history2     7     2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method     ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2     2	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1   11	history2   7   0   65   <1   904   1202   1017   1251   3536   history2   7   2   5
ADDITIVES 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	method     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2     2     current	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1   11   history1	history2   7   0   65   <1   904   1202   1017   1251   3536   history2   7   2   5   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2     2     current     0.3	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1   11   history1   0.3	history2   7   0   65   <1   904   1202   1017   1251   3536   history2   7   2   5   history2   0   0.4
ADDITIVES 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 ppm ppm	method   ASTM D5185m   ASTM D7844   *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >3 >20	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2     current     0.3     7.8	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1   11   history1   0.3   8.3	history2   7   0   65   <1   904   1202   1017   1251   3536   history2   7   2   5   history2   0.4   11.0
ADDITIVES 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	method   ASTM D5185m   ASTM D7844   *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >3 >20 >30	current     4     0     66     <1     1048     1213     1151     1381     3979     current     6     2     2     current     0.3     7.8     19.3	history1   97   0   64   <1   897   1236   1047   1279   3596   history1   6   1   11   history1   0.3   8.3   19.9	history2   7   0   65   <1   904   1202   1017   1251   3536   history2   7   2   5   history2   0.4   11.0   23.1

8.3

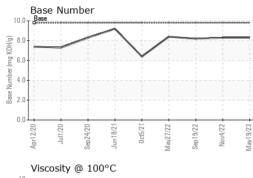
Base Number (BN) mg KOH/g ASTM D2896 9.8

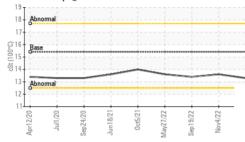
8.2

8.3



# **OIL ANALYSIS REPORT**

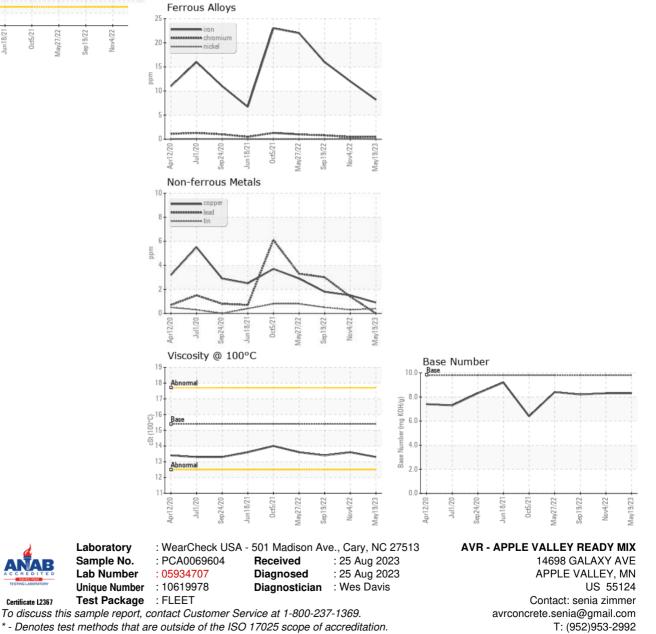




Certificate L2367

Report Id: AVRAPP [WUSCAR] 05934707 (Generated: 08/25/2023 18:48:29) Rev: 1

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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.6	13.4
GRAPHS						



F: (952)953-2994

Page 2 of 2