

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend





## Component Diesel Engine

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

### 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

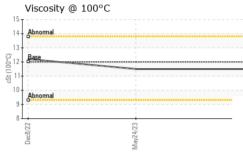
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

QTS)		Dec	2022	May2023 Sep202	23	
SAMPLE INFOF	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0088667	PCA0088500	PCA0051838
Sample Date		Client Info		13 Sep 2023	24 May 2023	08 Dec 2022
Machine Age	mls	Client Info		143893	109972	67222
Oil Age	mls	Client Info		143893	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ΓΙΟΝ	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	13	38	42
Chromium	ppm	ASTM D5185m	>20	<1	2	3
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	7	6	8
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m	>330	5	10	39
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	2	2	3
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	50	61	67	59
Manganese	ppm	ASTM D5185m	0	<1	<1	1
Magnesium	ppm	ASTM D5185m	950	936	1077	855
Calcium	ppm	ASTM D5185m	1050	1076	1204	1051
					1204	1251
Phosphorus	ppm	ASTM D5185m	995	1100	1033	871
Phosphorus Zinc	ppm ppm					
		ASTM D5185m	995	1100	1033	871
Zinc	ppm ppm	ASTM D5185m ASTM D5185m	995 1180	1100 1198	1033 1321	871 1177
Zinc Sulfur	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	995 1180 2600	1100 1198 2820	1033 1321 3201	871 1177 2765
Zinc Sulfur CONTAMINAN	ppm ppm NTS	ASTM D5185m ASTM D5185m ASTM D5185m method	995 1180 2600 limit/base	1100 1198 2820 current	1033 1321 3201 history1	871 1177 2765 history2
Zinc Sulfur CONTAMINAN Silicon	ppm ppm NTS ppm	ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	995 1180 2600 limit/base >25	1100 1198 2820 current 8	1033 1321 3201 history1 8	871 1177 2765 history2 10
Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm NTS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m	995 1180 2600 limit/base >25	1100 1198 2820 current 8 4	1033 1321 3201 history1 8 3	871 1177 2765 history2 10 3
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm NTS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m ASTM D5185m	995 1180 2600 limit/base >25 >20	1100 1198 2820 current 8 4 18	1033 1321 3201 history1 8 3 10	871 1177 2765 history2 10 3 20
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm NTS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m	995 1180 2600 limit/base >25 >20 limit/base >3	1100 1198 2820 current 8 4 18 current	1033 1321 3201 history1 8 3 10 history1	871 1177 2765 history2 10 3 20 history2
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm VTS ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844	995 1180 2600 limit/base >25 >20 limit/base >3	1100 1198 2820 current 8 4 18 current 0.7	1033 1321 3201 history1 8 3 10 history1 1.3	871 1177 2765 history2 10 3 20 history2 2.4
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm VTS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824	995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20	1100 1198 2820 current 8 4 18 current 0.7 8.8	1033 1321 3201 history1 8 3 10 history1 1.3 10.5	871 1177 2765 history2 10 3 20 history2 2.4 11.8
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm VTS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7824	995 1180 2600 imit/base >25 >20 imit/base >3 >20 >3 >20	1100 1198 2820 current 8 4 18 current 0.7 8.8 20.5 current	1033 1321 3201 history1 8 3 10 history1 1.3 10.5 23.0	871 1177 2765 history2 10 3 20 history2 2.4 11.8 25.4 history2
Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRA	ppm ppm VTS ppm ppm ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7844 *ASTM D7844	995 1180 2600 <b>limit/base</b> >25 >20 <b>limit/base</b> >30 >30	1100 1198 2820 current 8 4 18 current 0.7 8.8 20.5	1033 1321 3201 history1 8 3 10 history1 1.3 10.5 23.0 history1	871 1177 2765 history2 10 3 20 history2 2.4 11.8 25.4



# **OIL ANALYSIS REPORT**

Base Number 8.0 7.0 1.0 0.0 Dec8/22 Mav24/23



		method	limit/base	current	history1	history
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		method	limit/base	current	history1	history
Visc @ 100°C	cSt	ASTM D445	12.00	11.5	11.5	12.2
GRAPHS						
Ferrous Alloys						
45 40 iron						
35 - nickel						
30						
25						
15						
10						
5						
J						
	~					
	/24/23	**********	013/23			
Dec8/22	May24/23	**********	Sep 13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta			Sep 13/23			
Non-ferrous Meta			Sep 13/23			
Non-ferrous Meta			Sep13/23			
Non-ferrous Meta	ls					
Non-ferrous Meta	ls					
Non-ferrous Meta	Is May24/23		Sep13/23			
Non-ferrous Meta	Is May24/23		Sep13/23	Base Number	-	
Non-ferrous Meta	Is May24/23		50 13/23 13/23 13/23 12/24 12/	T	-	
Non-ferrous Meta	Is May24/23		8.0 7.0			
Non-ferrous Meta	Is May24/23		8.0 7.0			
Non-ferrous Meta	Is May24/23		8.0 7.0			
Non-ferrous Meta	Is May24/23		8.0 7.0			
Non-ferrous Meta	Is May24/23		8.0 7.0 8.0 7.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9			
Non-ferrous Meta	Is May24/23		8.0 7.0 (b)HOX building 888 880 800 100 100 100 100 100 100 100			
Non-ferrous Meta	Is May24/23		8.0 7.0 (b)HOX bu) 4.0 3.0 eeg 2.0 1.0			
Non-ferrous Meta	Is May24/23		8.0 7.0 (b)HOX building 888 880 800 100 100 100 100 100 100 100		Map24/23	

VISUAI method limit/base current history1 history2



Unique Number : 10722402 Diagnostician : Wes Davis Test Package : FLEET Contact: FRANK DIETZ Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. frank.dietz@mmeinc.com \* - 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)

Received

Diagnosed

: 31 Oct 2023

: 31 Oct 2023

Sample No.

Lab Number

: PCA0088667

: 05994042

Contact/Location: FRANK DIETZ - MIDFAR

US 55112

F: x:

2169 MUSTANG DR

MOUNDS VIEW, MN

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