

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend

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ile

## NORMAL

## Machine Id 10534

Component

Diesel Engine

## PETRO CANADA DURON SHP 15W40 (10 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

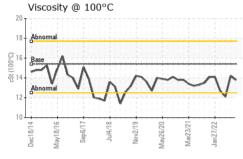
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

		c2014 May20	16 Sep2017 Jul2018	Nov2019 May2020 Mar2021	Jan2022	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0072068	GFL0072026	GFL0092495
Sample Date		Client Info		08 Mar 2024	04 Dec 2023	31 Aug 2023
Machine Age	hrs	Client Info		22470	22470	21803
Oil Age	hrs	Client Info		0	600	195
Oil Changed		Client Info		Not Changd	N/A	Not Changd
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	1.9
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	>75	52	11	25
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	5	4	3
Lead	ppm	ASTM D5185m	>25	<1	<1	0
Copper	ppm	ASTM D5185m	>100	40	1	10
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	3	1	40
Barium			0	0	0	0
Danum	ppm	ASTM D5185m	0	U	0	0
Molybdenum	ppm ppm	ASTM D5185m	60	61	42	42
			60	-		
Molybdenum	ppm	ASTM D5185m	60	61	42	42
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	60 0	61 <1	42 <1	42 <1
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010	61 <1 929	42 <1 741	42 <1 515
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070	61 <1 929 1045	42 <1 741 616	42 <1 515 1479
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150	61 <1 929 1045 1011	42 <1 741 616 633	42 <1 515 1479 694
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270	61 <1 929 1045 1011 1227	42 <1 741 616 633 784	42 <1 515 1479 694 907
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060	61 <1 929 1045 1011 1227 3219	42 <1 741 616 633 784 1935	42 <1 515 1479 694 907 2684
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	61 <1 929 1045 1011 1227 3219 current	42 <1 741 616 633 784 1935 history1	42 <1 515 1479 694 907 2684 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	60 0 1010 1070 1150 1270 2060 limit/base	61 <1 929 1045 1011 1227 3219 current 11	42 <1 741 616 633 784 1935 history1 7	42 <1 515 1479 694 907 2684 history2 17
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 Limit/base >25	61 <1 929 1045 1011 1227 3219 current 11 8	42 <1 741 616 633 784 1935 history1 7 5	42 <1 515 1479 694 907 2684 history2 17 52
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	61 <1 929 1045 1011 1227 3219 current 11 8 3	42 <1 741 616 633 784 1935 history1 7 5 10	42 <1 515 1479 694 907 2684 history2 17 52 2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 iimit/base >25 >20	61 <1 929 1045 1011 1227 3219 current 11 8 3 3	42 <1 741 616 633 784 1935 history1 7 5 10 history1	42 <1 515 1479 694 907 2684 history2 17 52 2 kistory2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >20	61 <1 929 1045 1011 1227 3219 current 11 8 3 current 1.1	42 <1 741 616 633 784 1935 history1 7 5 10 history1 0.5	42 <1 515 1479 694 907 2684 history2 17 52 2 history2 0.4
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	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >20	61 <1 929 1045 1011 1227 3219 current 11 8 3 Current 1.1 8.3 19.3	42 <1 741 616 633 784 1935 history1 7 5 10 history1 0.5 6.1	42 <1 515 1479 694 907 2684 history2 17 52 2 2 history2 0.4 6.0
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	ASTM D5185m ASTM D5185m	60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20 <b>limit/base</b> >6 >20 >30	61 <1 929 1045 1011 1227 3219 current 11 8 3 Current 1.1 8.3 19.3	42 <1 741 616 633 784 1935 history1 7 5 10 history1 0.5 6.1 18.1	42 <1 515 1479 694 907 2684 history2 17 52 2 history2 0.4 6.0 19.9
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	60 0 1010 1070 1150 1270 2060 limit/base >25 20 20 limit/base >6 >20 >30	61 <1 929 1045 1011 1227 3219 current 11 8 3 Current 1.1 8.3 19.3 current	42 <1 741 616 633 784 1935 history1 7 5 10 history1 0.5 6.1 18.1 18.1 history1	42 <1 515 1479 694 907 2684 history2 17 52 2 history2 0.4 6.0 19.9 history2



# **OIL ANALYSIS REPORT**

Base Number 12.0 10.0 Base Number (mg KOH/g) 9.8 6. 7 8 Bas 0.0 May26/20 Vlar23/21 Jan 27/22 Dec18/14 Sen6/1



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	13.8	14.2	12.1
GRAPHS						

Ferrous Alloys 100 80 60 ppm 40 20 Dec18/14 Mav18/1 1/2/1 Non-ferrous Metals 8 70 60 50 ud 40 30 20 10 CILCUE 1/2/1 Dec1 [Jav] Viscosity @ 100°C Base Number 19 12.0 18 10. 17 Base Number (mg KOH/g) 8 ( S+ /100°C 6.0 4. 12 21 10 0.0 Dec18/14 -Sep6/17 Dec18/14 Jan27/22 Sep6/17 Nov2/19 Mav18/16 Aav76/20 Mar23/21 May18/16 Jul4/18 Vlay26/20 Mar23/21 Jan27/22 P L/CAN : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 094 - Cedartown Laboratory Sample No. : GFL0072068 Received : 13 Mar 2024 2097 Buchanan Highway Lab Number : 06117692 Tested : 14 Mar 2024 Cedartown, GA Unique Number : 10926525 Diagnosed : 14 Mar 2024 - Wes Davis US 30125 Test Package : FLEET Contact: WILLIAM FOSTER To discuss this sample report, contact Customer Service at 1-800-237-1369. william.foster@gflenv.com T: (800)207-6618



\* - 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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