

## **OIL ANALYSIS REPORT**

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## NORMAL



#### Component

Diesel Engine

## PETRO CANADA DURON SHP 15W40 (11 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.

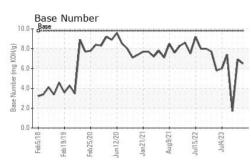
### Fluid Condition

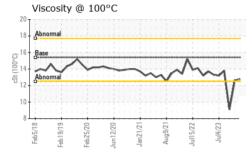
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103433	GFL0074641	GFL0074622
Sample Date		Client Info		27 Mar 2024	01 Feb 2024	22 Dec 2023
Machine Age	hrs	Client Info		0	82653	82379
Oil Age	hrs	Client Info		600	274	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	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	0.0
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	73	53	71
Chromium	ppm	ASTM D5185m	>5	1	<1	1
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	6	4	3
Lead	ppm	ASTM D5185m	>25	<1	0	<1
Copper	ppm	ASTM D5185m	>100	0	4	<1
Tin	ppm	ASTM D5185m	>4	0	<1	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		limit/base 0	current 8	history1 5	history2 <1
	ppm ppm					
Boron		ASTM D5185m	0	8	5	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0	5 0	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 58	5 0 60	<1 0 26
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 58 <1	5 0 60 0	<1 0 26 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 58 <1 812	5 0 60 0 847	<1 0 26 <1 • 350
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	8 0 58 <1 812 987	5 0 60 0 847 1044	<1 0 26 <1 350 429
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 58 <1 812 987 925	5 0 60 0 847 1044 965	<1 0 26 <1 350 429 496
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	0 0 60 0 1010 1070 1150 1270	8 0 58 <1 812 987 925 11111	5 0 60 0 847 1044 965 1125	<1 0 26 <1 350 429 496 620
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	8 0 58 <1 812 987 925 1111 2944	5 0 60 0 847 1044 965 1125 2830	<1 0 26 <1 350 429 496 620 1296
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	8 0 58 <1 812 987 925 11111 2944 current	5 0 60 0 847 1044 965 1125 2830 history1	<1 0 26 <1 350 429 496 620 1296 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	0 0 60 1010 1070 1150 1270 2060	8 0 58 <1 812 987 925 11111 2944 current 8	5 0 60 0 847 1044 965 1125 2830 history1 7	<1 0 26 <1 350 429 496 620 1296 history2 10
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 0 58 <1 812 987 925 1111 2944 <u>current</u> 8 58	5 0 60 0 847 1044 965 1125 2830 history1 7 63	<1 0 26 <1 350 429 496 620 1296 history2 10 99
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	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	8 0 58 <1 812 987 925 1111 2944 current 8 58 4	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3	<1 0 26 <1 350 429 496 620 1296 history2 10 99 6
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	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	8 0 58 <1 812 987 925 1111 2944 <u>current</u> 8 58 4 4	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3 3	<1 0 26 <1 350 429 620 1296 history2 10 99 6 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	8 0 58 <1 812 987 925 1111 2944 <u>current</u> 8 58 4 <u>current</u> 1.7	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3 3 history1 0.8	<1 0 26 <1 350 429 496 620 1296 history2 10 99 6 history2 0.7
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	8 0 58 <1 812 987 925 1111 2944 <i>current</i> 8 58 4 <i>current</i> 1.7 10.5	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3 history1 0.8 8.3	<1 0 26 <1 350 429 496 620 1296 history2 10 99 6 history2 0.7 8.5
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >25 <b>imit/base</b> >6 >20	8 0 58 <1 812 987 925 1111 2944 <u>current</u> 8 58 4 <u>current</u> 1.7 10.5 22.1	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3 <b>history1</b> 0.8 8.3 19.2	<1 0 26 <1 350 429 620 1296 history2 10 99 6 <u>history2</u> 0.7 8.5 19.4
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	8 0 58 <1 812 987 925 1111 2944 <i>current</i> 8 58 4 <i>current</i> 1.7 10.5 22.1 <i>current</i>	5 0 60 0 847 1044 965 1125 2830 history1 7 63 3 history1 0.8 8.3 19.2 history1	<1 0 26 <1 350 429 496 620 1296 history2 10 99 6 history2 0.7 8.5 19.4 history2

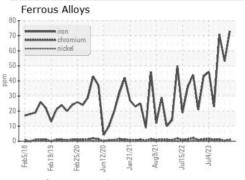


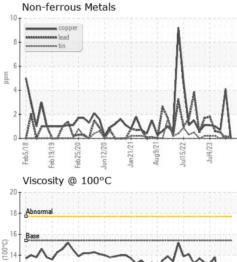
# **OIL ANALYSIS REPORT**





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	12.8	12.6	9.1
GRAPHS						





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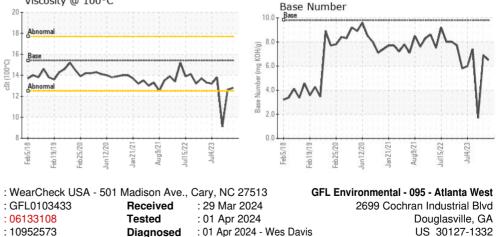
Feb5/18

: GFL0103433

Feb25/20

Jun 12/20

Feb 19/19





Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. darrell.welch@gflenv.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)

Jul4/23 -

Aug9/21

Received

Diagnosed

Tested

Jan21/21

Laboratory

Sample No.

Lab Number : 06133108

Unique Number : 10952573

Contact: Darrell Welch

T: (800)207-6618

F: