

## **OIL ANALYSIS REPORT**

Sample Rating Trend





## Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 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.

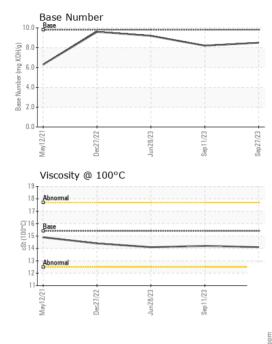
## Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092962	GFL0092948	GFL0015782
Sample Date		Client Info		27 Sep 2023	11 Sep 2023	28 Jun 2023
Machine Age	hrs	Client Info		28378	28378	215
Oil Age	hrs	Client Info		28378	215	0
Oil Changed		Client Info		N/A	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	49	39	31
Chromium	ppm	ASTM D5185m	>20	1	2	2
Nickel	ppm	ASTM D5185m		<1	<1	1
Titanium	ppm	ASTM D5185m	- 1	<1	<1	2
Silver	ppm	ASTM D5185m	>3	0	0	2
Aluminum	ppm	ASTM D5185m	>20	4	1	2
Lead	ppm	ASTM D5185m	>40	2	3	5
Copper	ppm		>330	4	3	4
Tin	ppm		>15	<1	2	2
Vanadium	ppm	ASTM D5185m	210	<1	0	1
Cadmium	ppm	ASTM D5185m		<1	<1	2
	ppin					
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	5	5	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	5 <1	5 44	4 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 <1 65	5 44 57	4 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 <1 65 <1	5 44 57 1	4 0 54 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 <1 65 <1 975	5 44 57 1 891	4 0 54 2 928
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	5 <1 65 <1 975 1094	5 44 57 1 891 1009	4 0 54 2 928 1075
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	5 <1 65 <1 975 1094 1050	5 44 57 1 891 1009 940	4 0 54 2 928 1075 957
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	5 <1 65 <1 975 1094 1050 1290	5 44 57 1 891 1009 940 1165	4 0 54 2 928 1075 957 1193
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	0 0 60 0 1010 1070 1150	5 <1 65 <1 975 1094 1050	5 44 57 1 891 1009 940 1165 3153	4 0 54 2 928 1075 957 1193 3460
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 0 1010 1070 1150 1270 2060	5 <1 65 <1 975 1094 1050 1290 3696 current	5 44 57 1 891 1009 940 1165 3153 history1	4 0 54 2 928 1075 957 1193 3460 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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>	0 0 60 0 1010 1070 1150 1270 2060	5 <1 65 <1 975 1094 1050 1290 3696 current 5	5 44 57 1 891 1009 940 1165 3153 history1 4	4 0 54 2 928 1075 957 1193 3460 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	0 0 60 0 1010 1070 1150 1270 2060	5 <1 65 <1 975 1094 1050 1290 3696 current	5 44 57 1 891 1009 940 1165 3153 history1 4 8	4 0 54 2 928 1075 957 1193 3460 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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>	0 0 60 0 1010 1070 1150 1270 2060	5 <1 65 <1 975 1094 1050 1290 3696 current 5	5 44 57 1 891 1009 940 1165 3153 history1 4	4 0 54 2 928 1075 957 1193 3460 history2 5
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	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	5 <1 65 <1 975 1094 1050 1290 3696 <u>Current</u> 5 11	5 44 57 1 891 1009 940 1165 3153 history1 4 8	4 0 54 2 928 1075 957 1193 3460 history2 5 8
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	5 <1 65 <1 975 1094 1050 1290 3696 current 5 5 11 4	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm 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	5 <1 65 <1 975 1094 1050 1290 3696 current 5 11 4 current	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5 5	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7 7
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	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	5 <1 65 <1 975 1094 1050 1290 3696 <u>current</u> 5 11 4 <u>current</u>	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5 5 history1 1.1	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7 7 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	5 <1 65 <1 975 1094 1050 1290 3696 <i>current</i> 5 11 4 <i>current</i> 1.3 10.0	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5 <u>history1</u> 1.1 8.8	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7 5 8 7 history2 0.6 8.2
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 2060 225 20 225 20 20 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	5 <1 65 <1 975 1094 1050 1290 3696 <u>current</u> 5 11 4 <u>current</u> 1.3 10.0 22.7	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5 5 history1 1.1 8.8 21.4	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7 <b>history2</b> 0.6 8.2 20.7
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 D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 Simit/base	5 <1 65 <1 975 1094 1050 1290 3696 <i>current</i> 5 11 4 <i>current</i> 1.3 10.0 22.7 <i>current</i>	5 44 57 1 891 1009 940 1165 3153 history1 4 8 5 history1 1.1 8.8 21.4 history1	4 0 54 2 928 1075 957 1193 3460 history2 5 8 7 history2 0.6 8.2 20.7 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	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.2	14.1
GRAPHS						
Ferrous Alloys						
50 iron			/			
40 - normanium						
30	1					
20						
10						

Sep11/23.

Sep 11/23

Sep11/23.

Sep27/23

Sep 27/23

Sep27/23 -

:01 Nov 2023

: 02 Nov 2023

10.0 T Base

8.

1.6 Mumper (mg

Hase Num

0.0

May12/21.

(mg KOH/g)

Base Number

Dec27/22



 Vertraction
 Unique Number
 : 10723756
 Diagnostician
 : Wes Davis

 Certificate 12367
 Test Package
 : FLEET

 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 \* - 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)

1028/73

Jun28/23

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received

Diagnosed

Laboratory Sample No.

Lab Number

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30

19

18

17

ぢ 14

> 13 12 11

May12/21

: GFL0092962

: 05995396

Mav12/2

Dec27/22

Non-ferrous Metals

lead

Viscosity @ 100°C

Dec27/22

Jun28/23

GFL Environmental - 463 - Cheboygan

Sep11/23.

501 N. Western Ave

Contact: Chris Gee

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T: (231)597-8553

Cheboygan, MI US 49721

Sep27/23

F: