

# **OIL ANALYSIS REPORT**

Sample Rating Trend

NORMAL

# Machine Id 422089

#### Component Diesel Engine

Fluid 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.

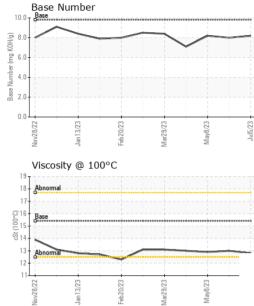
# Fluid Condition

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

SAMPLE INFORI		method	limit/base	current	history1	history2
	VIATION		IIIIII/Dase			
Sample Number		Client Info		GFL0083664	GFL0083678	GFL0080019
Sample Date		Client Info		05 Jul 2023	30 May 2023	08 May 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	600
Oil Changed		Client Info		Not Changd	N/A	Changed
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	>110	16	6	17
Chromium	ppm	ASTM D5185m	>4	2	<1	2
Nickel	ppm	ASTM D5185m	>2	0	1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>25	4	2	7
Lead	ppm	ASTM D5185m		0	<1	2
Copper	ppm	ASTM D5185m		0	0	0
Tin	ppm	ASTM D5185m	>4	<1	0	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	pp				-	-
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	2	3	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	3 0	2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 54	3 0 51	2 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 54 <1	3 0 51 <1	2 0 59 <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	2 0 54 <1 893	3 0 51 <1 873	2 0 59 <1 982
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	2 0 54 <1 893 1212	3 0 51 <1 873 1141	2 0 59 <1 982 1357
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	2 0 54 <1 893 1212 989	3 0 51 <1 873 1141 995	2 0 59 <1 982 1357 1098
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	2 0 54 <1 893 1212 989 1260	3 0 51 <1 873 1141 995 1257	2 0 59 <1 982 1357 1098 1353
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	0 0 60 0 1010 1070 1150	2 0 54 <1 893 1212 989	3 0 51 <1 873 1141 995	2 0 59 <1 982 1357 1098
Boron Barium 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	0 0 60 0 1010 1070 1150 1270	2 0 54 <1 893 1212 989 1260 3634	3 0 51 <1 873 1141 995 1257	2 0 59 <1 982 1357 1098 1353
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 1270 2060	2 0 54 <1 893 1212 989 1260 3634	3 0 51 <1 873 1141 995 1257 3703	2 0 59 <1 982 1357 1098 1353 3695
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	2 0 54 <1 893 1212 989 1260 3634 current	3 0 51 <1 873 1141 995 1257 3703 history1	2 0 59 <1 982 1357 1098 1353 3695 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>	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	2 0 54 <1 893 1212 989 1260 3634 <i>current</i> 8	3 0 51 <1 873 1141 995 1257 3703 history1 4	2 0 59 <1 982 1357 1098 1353 3695 history2 7
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 <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	2 0 54 <1 893 1212 989 1260 3634 current 8 4 6	3 0 51 <1 873 1141 995 1257 3703 history1 4 2	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5
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> >30	2 0 54 <1 893 1212 989 1260 3634 current 8 4 6	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	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> >30 20 <b>limit/base</b>	2 0 54 <1 893 1212 989 1260 3634 <i>current</i> 8 4 6	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5 5	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13 13 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30 20 <b>limit/base</b>	2 0 54 <1 893 1212 989 1260 3634 <i>current</i> 8 4 6 <i>current</i>	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5 5 history1 0.2	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13 13 history2 0.4
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 imit/base >30 220 imit/base >3 >20	2 0 54 <1 893 1212 989 1260 3634 <i>current</i> 8 4 6 <i>current</i> 0.3 7.0	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5 <u>history1</u> 0.2 5.4	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13 13 history2 0.4 7.9
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> >30 <b>imit/base</b> >3 >20	2 0 54 <1 893 1212 989 1260 3634 <i>current</i> 8 4 6 <i>current</i> 0.3 7.0 18.5	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5 5 history1 0.2 5.4 18.4	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13 history2 0.4 7.9 19.6 history2
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	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	2 0 54 <1 893 1212 989 1260 3634 current 8 4 6 current 0.3 7.0 18.5	3 0 51 <1 873 1141 995 1257 3703 history1 4 2 5 history1 0.2 5.4 18.4 history1	2 0 59 <1 982 1357 1098 1353 3695 history2 7 5 13 history2 0.4 7.9 19.6



# **OIL ANALYSIS REPORT**



VISUAL		method	limit/base	current	history1	history2
Vhite Metal	scalar	*Visual	NONE	NONE	NONE	NONE
ellow 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
Ddor	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
/isc @ 100°C	cSt	ASTM D445	15.4	12.8	13.0	12.9
GRAPHS Ferrous Alloys		Λ	1			
Ferrous Alloys		$\wedge$	/			
Ferrous Alloys		CZOBNEW	15/2 A			
Ferrous Alloys		ECOVERM	Außi23			
Ferrous Alloys		May6/23	Juli 23			

Base Number

Jan 13/23

Feb20/23

Mar29/23

GFL Environmental - 846 - Mayfield Hauling

10.0 Base

8 (mg KOH/g)

6 (

0.0

Vov28/22

Vumber ( 4 ( Base

Jul5/23 .

: 20 Jul 2023

: 21 Jul 2023



Unique Number : 10564963 Diagnostician : Wes Davis Test Package : FLEET Certificate L2367 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)

Feb20/23

-0/UC44

an 13/7 Viscosity @ 100°C

Jan 13/23

19

18 17

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13 Abr 12 11-

Laboratory

Sample No.

Lab Number

B

Nov28/22

: GFL0083664

: 05903607

Mar29/23

Mar29/23

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

Received

Diagnosed

May8/23 -

Contact/Location: Jack Lindsey - GFL846

May8/23 -

3426 State Route 45

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lul5/23

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