

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend

NORMAL

## Area (YA154615) 3866 Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (42 QTS)

### 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.

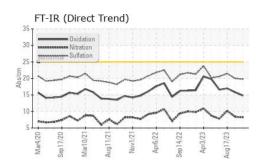
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0111081	GFL0111061	GFL0087776
Sample Date		Client Info		08 May 2024	06 Mar 2024	17 Aug 2023
Machine Age	hrs	Client Info		13793	13407	11720
Oil Age	hrs	Client Info		386	807	569
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
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	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	20	39	34
Chromium	ppm	ASTM D5185m	>20	1	3	3
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	5	6
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	2	6	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	0 history2
	ppm ppm		limit/base 0			-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 1	history2 <1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 0 0	history1 1 0	history2 <1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 64	history1 1 0 66	history2 <1 0 63
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 64 <1	history1 1 0 66 1	history2 <1 0 63 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 0 0 64 <1 946	history1 1 0 66 1 923	history2 <1 0 63 <1 1012
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 0 0 64 <1 946 1100	history1 1 0 66 1 923 1000 1020 1245	history2 <1 0 63 <1 1012 1159 1039 1300
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	Current 0 0 64 <1 946 1100 1073	history1 1 0 66 1 923 1000 1020	history2           <1           0           63           <1           1012           1159           1039
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270	Current 0 0 64 <1 946 1100 1073 1237	history1 1 0 66 1 923 1000 1020 1245	history2 <1 0 63 <1 1012 1159 1039 1300
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 0 0 64 <1 946 1100 1073 1237 3169	history1  1  0  66  1  923 1000 1020 1245 2985	history2 <1 0 63 <1 1012 1159 1039 1300 3504
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 0 64 <1 946 1100 1073 1237 3169 Current	history1  1  0  66  1  923  1000  1020  1245  2985  history1	<1         0         63         <1         1012         1159         1039         1300         3504         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	Current 0 0 64 <1 946 1100 1073 1237 3169 Current 5	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9	<1         0         63         <1         1012         1159         1039         1300         3504         history2         4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	current           0           0           64           <1           946           1100           1073           1237           3169           current           5           35	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230	<1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	Current           0           0           64           <1           946           1100           1073           1237           3169           current           5           35           13	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230         80	<1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 2060 225 >25 >20	0         0         64         <1         946         1100         1073         1237         3169         current         5         35         13         current	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230         80         history1	history2         <1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5         5         history2
ADDITIVES 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	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	Current           0           0           64           <1           946           1100           1073           1237           3169           current           5           35           13           current           0.7	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230         80         history1         0.7	<1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5         5         history2         1
ADDITIVES 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	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 imit/base >20 imit/base	Current         0         0         64         <1         946         1100         1073         1237         3169         current         5         35         13         current         0.7         8.2	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230         80         history1         0.7         8.4	history2         <1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5         5         history2         1         10.2
ADDITIVES 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	method         ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20 <b>imit/base</b> >20 <b>imit/base</b> >20	0         0         64         <1         946         1100         1073         1237         3169         current         5         35         13         current         0.7         8.2         19.8	history1         1         0         66         1         923         1000         1020         1245         2985         history1         9         230         80         history1         0.7         8.4         20.0	<1         0         63         <1         1012         1159         1039         1300         3504         history2         4         5         5         history2         1         10.2         21.5

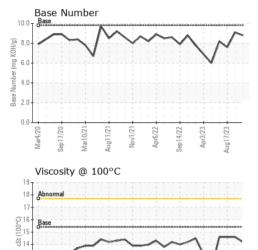


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> Mar4/20 -Sep17/20

# **OIL ANALYSIS REPORT**





ug11/21.

Vov1/21

nr6/22 ten14/22

Mar10/21

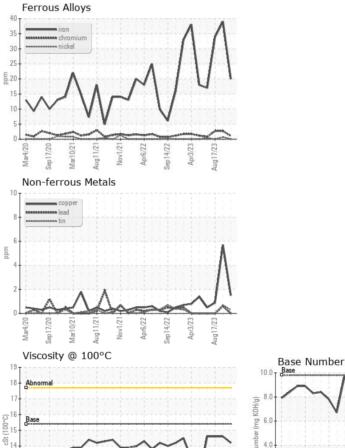
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.2	14.6	14.6
GRAPHS						

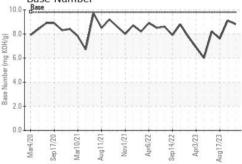
Aug17/23 .

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> Mar4/20 Sen17/20

Apr3/23





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0111081 Received :09 May 2024 3618 US Highway 421 N Lab Number : 06174945 Tested : 10 May 2024 Wilmington, NC US 28401 Unique Number : 11020998 Diagnosed : 10 May 2024 - Wes Davis Test Package : FLEET Contact: Eric Wood Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. eric.wood@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (717)723-1956 F: (910)762-6880

Nov1/21

pr6/22

Apr3/23

Sep 14/22

Aug17/23

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Aug11/21.

Mar10/21

Report Id: GFL006 [WUSCAR] 06174945 (Generated: 05/10/2024 17:08:35) Rev: 1

Submitted By: Eric Wood

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