

## **OIL ANALYSIS REPORT**



### Machine Id

# **413024**

#### Component Diesel Engine Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

### DIA<u>GNOSIS</u>

#### 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.

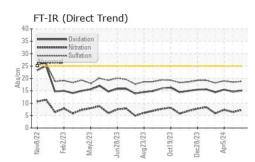
### Fluid Condition

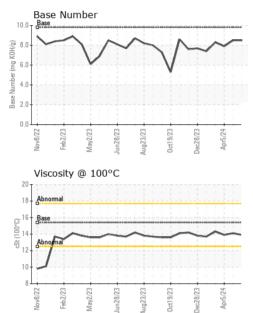
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0123033	GFL0119377	GFL0115389
Sample Date		Client Info		28 May 2024	08 May 2024	05 Apr 2024
Machine Age	hrs	Client Info		3746	3604	3420
Oil Age	hrs	Client Info		142	184	173
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	6	5	12
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	2	2	<b>6</b>
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	2
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	3	4	2
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	nnm	ASTM D5185m			4	0
Gaumum	ppm	ASTIVI DOTIODITI		<1	<1	0
ADDITIVES	ppili	method	limit/base	<1 current	<1 history1	history2
	ppm		limit/base			
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 4	history1 8	history2 8
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 4 <1	history1 8 0	history2 8 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 4 <1 57	history1 8 0 58	history2 8 0 59
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 4 <1 57 <1	history1 8 0 58 <1	history2 8 0 59 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 4 <1 57 <1 954	history1 8 0 58 <1 907	history2 8 0 59 <1 915
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current           4           <1           57           <1           954           1025	history1 8 0 58 <1 907 1036	history2 8 0 59 <1 915 1090
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           4           <1           57           <1           954           1025           1102	history1 8 0 58 <1 907 1036 987	history2           8           0           59           <1           915           1090           952
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	current           4           <1           57           <1           954           1025           1102           1215	history1           8           0           58           <1           907           1036           987           1176	history2           8           0           59           <1           915           1090           952           1187
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	Current           4           <1           57           <1           954           1025           1102           1215           2866	history1  8  0  58  <1  907  1036  987  1176  3420	history2           8           0           59           <1           915           1090           952           1187           3413
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current         4         <1         57         <1         954         1025         1102         1215         2866         current	history1         8         0         58         <1         907         1036         987         1176         3420         history1	history2         8         0         59         <1         915         1090         952         1187         3413         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	current           4           <1           57           <1           954           1025           1102           1215           2866           current           5	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6	history2         8         0         59         <1         915         1090         952         1187         3413         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 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25	current         4         <1         57         <1         954         1025         1102         1215         2866         current         5         2	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         4
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>imit/base</b> >25 >20	4         <1         57         <1         954         1025         1102         1215         2866         current         5         2         5         2         5         5         5         5	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1         4	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         4         16
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 <b>TS</b> ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	Current 4 <1 57 <1 954 1025 1102 1215 2866 Current 5 2 5 5 Current	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1         4         history1	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         4         16         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 <b>imit/base</b> >25 >20 <b>imit/base</b>	current         4         <1         57         <1         954         1025         1102         1215         2866         current         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         0.2	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1         4         history1         0.1	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         4         16         history2         0.2
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	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20	current         4         <1         57         <1         954         1025         1102         1215         2866         current         5         2         5         2         5         2         5         0.2         7.3	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1         4         history1         0.1         6.4	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         4         16         history2         0.2         7.3
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           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <b>imit/base</b> >3 >20 >30	4         <1         57         <1         954         1025         1102         1215         2866         current         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         2         5         18.8	history1         8         0         58         <1         907         1036         987         1176         3420         history1         6         <1         4         history1         0.1         6.4         18.5	history2         8         0         59         <1         915         1090         952         1187         3413         history2         4         16         history2         0.2         7.3         19.0



# **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	13.9	14.1	13.9
GRAPHS						

Ferrous Alloys

Non-ferrous Metals

Feb2/23

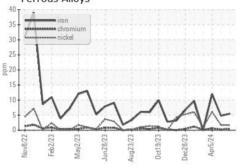
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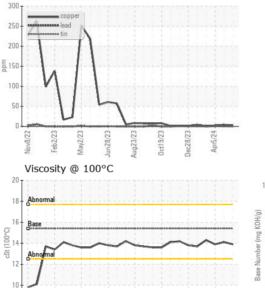
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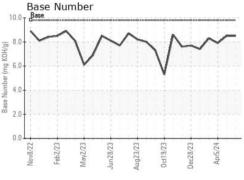
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Vov8/22







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 814 - Little Rock Hauling Sample No. : GFL0123033 Received : 17 Jun 2024 4005 Hwy 161 N. Lab Number : 06212941 Tested : 19 Jun 2024 LIttle Rock, AR Unique Number : 11085805 Diagnosed : 19 Jun 2024 - Wes Davis US 72117 Contact: Brad Koenig Test Package : FLEET Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. bkoenig@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Apr5/24

Dec28/23