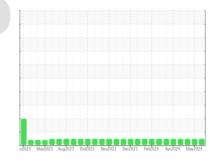


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id
913179
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.

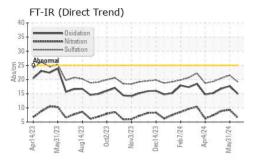
## **Fluid Condition**

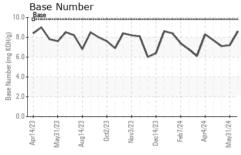
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

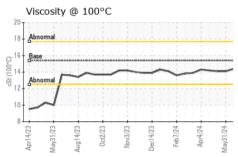
Machine Age         hrs         Client Info         3783         3636         3489           Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Changed         Changed	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         3783         3636         3489           Oil Age         hrs         Client Info         0         0         0           Oil Changed         Client Info         Changed         Changed	Sample Number		Client Info		GFL0123003	GFL0123026	GFL0119396
Oil Age         hrs         Client Info         0         1         0         1         0         1         0         1         0         1         0         0         1         0	Sample Date		Client Info		20 Jun 2024	31 May 2024	14 May 2024
Changed   Changed   Changed   NORMAL   NORMAL   NORMAL	Machine Age	nrs	Client Info		3783	3636	3489
NORMAL   NORMAL   NORMAL   NORMAL	Oil Age	hrs	Client Info		0	0	0
CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol         WC Method         >0.2         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         3         17         12           Chromium         ppm         ASTM D5185m         >20         0         <1         0           Nickel         ppm         ASTM D5185m         >4         0         2         0           Silver         ppm         ASTM D5185m         >4         0         2         0           Silver         ppm         ASTM D5185m         >4         0         0         0           Silver         ppm         ASTM D5185m         >20         2         4         2           Lead         ppm         ASTM D5185m         >40         0         0         <1         <1           Copper         ppm         ASTM D5185m         >15         0         <1         <1         <1           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0 <t< th=""><th>CONTAMINATIO</th><th>N</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >20         0         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	opm	ASTM D5185m	>100	3	17	12
Description	Chromium	opm	ASTM D5185m	>20	0	<1	0
Silver	Nickel	opm	ASTM D5185m	>4	0	2	0
Aluminum	Titanium	opm	ASTM D5185m		0	<1	0
Aluminum			ASTM D5185m	>3	0	0	0
Copper         ppm         ASTM D5185m         >330         <1         2         <1           Tin         ppm         ASTM D5185m         >15         0         <1	Aluminum	opm	ASTM D5185m	>20	2	4	2
Copper         ppm         ASTM D5185m         >330         <1         2         <1           Tin         ppm         ASTM D5185m         >15         0         <1	Lead	opm	ASTM D5185m	>40	0	0	<1
Tin			ASTM D5185m	>330	<1	2	<1
Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         8         6         9           Barium         ppm         ASTM D5185m         0         0         1         0           Molybdenum         ppm         ASTM D5185m         0         0         1         0           Molybdenum         ppm         ASTM D5185m         0         <1         <1         0           Molybdenum         ppm         ASTM D5185m         0         <1         <1         <1           Mangnesium         ppm         ASTM D5185m         1010         984         1062         990           Calcium         ppm         ASTM D5185m         1070         1035         1282         1141           Phosphorus         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499				>15	0	<1	
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         8         6         9           Barium         ppm         ASTM D5185m         0         0         1         0           Molybdenum         ppm         ASTM D5185m         0         <1			ASTM D5185m		0	0	0
Boron			ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         1         0           Molybdenum         ppm         ASTM D5185m         60         58         75         66           Manganese         ppm         ASTM D5185m         0         <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         58         75         66           Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         984         1062         990           Calcium         ppm         ASTM D5185m         1070         1035         1282         1141           Phosphorus         ppm         ASTM D5185m         1150         1040         1125         1084           Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >3	Boron	opm	ASTM D5185m	0	8	6	9
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         984         1062         990           Calcium         ppm         ASTM D5185m         1070         1035         1282         1141           Phosphorus         ppm         ASTM D5185m         1150         1040         1125         1084           Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         >20         3         <1         3           Potassium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624	Barium	opm	ASTM D5185m	0	0	1	0
Magnesium         ppm         ASTM D5185m         1010         984         1062         990           Calcium         ppm         ASTM D5185m         1070         1035         1282         1141           Phosphorus         ppm         ASTM D5185m         1150         1040         1125         1084           Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1         3           Potassium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         % ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1	Molybdenum	opm	ASTM D5185m	60	58	75	66
Calcium         ppm         ASTM D5185m         1070         1035         1282         1141           Phosphorus         ppm         ASTM D5185m         1150         1040         1125         1084           Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1	Manganese	opm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         1040         1125         1084           Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs	Magnesium	opm	ASTM D5185m	1010	984	1062	990
Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1	Calcium	opm	ASTM D5185m	1070	1035	1282	1141
Zinc         ppm         ASTM D5185m         1270         1258         1437         1273           Sulfur         ppm         ASTM D5185m         2060         3579         3499         3347           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1	Phosphorus	opm	ASTM D5185m	1150	1040	1125	1084
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1		opm	ASTM D5185m	1270	1258	1437	1273
Silicon         ppm         ASTM D5185m         >25         4         8         6           Sodium         ppm         ASTM D5185m         3         <1         3           Potassium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	Sulfur	opm	ASTM D5185m	2060	3579	3499	3347
Sodium         ppm         ASTM D5185m         3         <1         3           Potassium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	CONTAMINANTS method limit/base current history1 history2						
Potassium         ppm         ASTM D5185m         >20         3         6         2           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.2         0.7         0.6           Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	Silicon	opm	ASTM D5185m	>25	4	8	6
INFRA-RED	Sodium	opm	ASTM D5185m		3	<1	3
Soot %         %         *ASTM D7844 >3         0.2         0.7         0.6           Nitration         Abs/cm         *ASTM D7624 >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415 >30         19.1         21.5         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.9         17.7         16.8	Potassium	opm	ASTM D5185m	>20	3	6	2
Nitration         Abs/cm         *ASTM D7624         >20         6.4         9.3         8.9           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	Soot %	%	*ASTM D7844	>3	0.2	0.7	0.6
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.1         21.5         20.5           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         17.7         16.8	Nitration	Abs/cm	*ASTM D7624	>20	6.4	9.3	8.9
Oxidation Abs/.1mm *ASTM D7414 >25 <b>14.9</b> 17.7 16.8							20.5
	FLUID DEGRADATION method limit/base current history1 history2						
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	17.7	16.8
					8.6	7.2	7.1



## **OIL ANALYSIS REPORT**



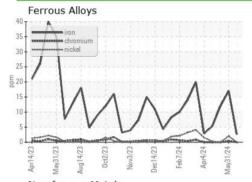


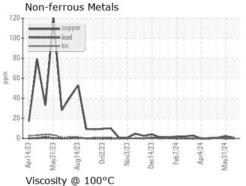


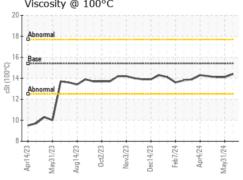
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

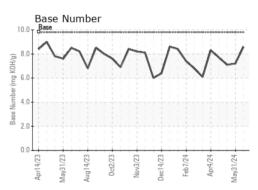
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.4	14.1	14.1

## **GRAPHS**













Laboratory Sample No. Lab Number : 06220509 Unique Number : 11098706

: GFL0123003

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

Received : 25 Jun 2024 **Tested** : 26 Jun 2024 Diagnosed : 26 Jun 2024 - Wes Davis

GFL Environmental - 814 - Little Rock Hauling 4005 Hwy 161 N. Little Rock, AR

US 72117 Contact: Brad Koenig bkoenig@gflenv.com

T:

F:

Test Package : FLEET Certificate 12367 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)

Report Id: GFL814 [WUSCAR] 06220509 (Generated: 06/28/2024 00:41:14) Rev: 1

Submitted By: Nicole Walls