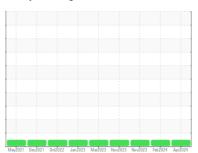


# **OIL ANALYSIS REPORT**

# Sample Rating Trend









# 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

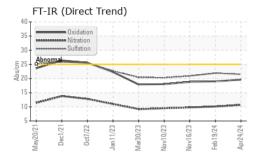
## **Fluid Condition**

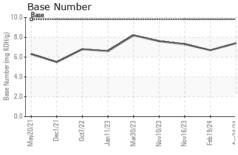
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

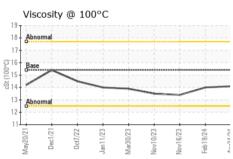
Sample Number   Client Info   24 Apr 2024   19 Feb 2024   16 Nov 2023   18 Nov 2023	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         14677         13953         13100           Oil Age         hrs         Client Info         13953         13100         13039           Oil Changed         Client Info         Changed         Changed         Changed         Changed           Sample Status         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0         <1.0         <1.0           Water         WC Method         NEG         NEG         NEG         NEG           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         20         31         19           Chromium         ppm         ASTM D5185m         >5         <1         1         <1           Nickel         ppm         ASTM D5185m         >2         0         0         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Copper         ppm         ASTM D5185m         >10         0         0         0	Sample Number		Client Info		GFL0122367	GFL0108935	GFL0101602
Oil Age         hrs         Client Info         13953         13100         13039           Oil Changed Sample Status         Client Info         Changed Changed Changed Changed Changed Changed NORMAL NORM	Sample Date		Client Info		24 Apr 2024	19 Feb 2024	16 Nov 2023
Client Info   NORMAL   NORMAL   NORMAL	Machine Age	hrs	Client Info		14677	13953	13100
NORMAL   NORMAL   NORMAL	Oil Age	hrs	Client Info		13953	13100	13039
Fuel	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         NEG         NEG           Glycol         WC Method         Imit/base         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >75         20         31         19           Chromium         ppm         ASTM D5185m         >5         <1         1         <1           Nickel         ppm         ASTM D5185m         >4         0         <1         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Silver         ppm         ASTM D5185m         >25         0         0         0           Silver         ppm         ASTM D5185m         >25         0         0         0           Silver         ppm         ASTM D5185m         >25         0         0         0           Copper         ppm         ASTM D5185m         >4         0         <1         0           Copper         ppm         ASTM D5185m         0         0         0         0 <th>CONTAMINATIO</th> <th>NC</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATIO	NC	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium         ppm         ASTM D5185m         >5         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>75	20	31	19
Titanium         ppm         ASTM D5185m         >2         0         0         <1           Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >15         4         7         5           Lead         ppm         ASTM D5185m         >25         0         0         0           Copper         ppm         ASTM D5185m         >4         0         <1	Chromium	ppm	ASTM D5185m	>5	<1	1	<1
Silver         ppm         ASTM D5185m         >2         0         0         0           Aluminum         ppm         ASTM D5185m         >15         4         7         5           Lead         ppm         ASTM D5185m         >100         0         2         2           Copper         ppm         ASTM D5185m         >100         0         2         2           Tin         ppm         ASTM D5185m         >4         0         <1         0           Vanadium         ppm         ASTM D5185m         0         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1         <1         0           Barium         ppm         ASTM D5185m         0         <1         <1         0           Barium         ppm         ASTM D5185m         0         <1         0         0           Manganesium         ppm         ASTM D5185m         1010         931         876	Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Aluminum         ppm         ASTM D5185m         >15         4         7         5           Lead         ppm         ASTM D5185m         >25         0         0         0           Copper         ppm         ASTM D5185m         >100         0         2         2           Tin         ppm         ASTM D5185m         >4         0         <1	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper         ppm         ASTM D5185m         >100         0         2         2           Tin         ppm         ASTM D5185m         >4         0         <1	Aluminum	ppm	ASTM D5185m	>15	4	7	5
Tin         ppm         ASTM D5185m         >4         0         <1         0           Vanadium         ppm         ASTM D5185m         0         0         0           Cadmium         ppm         ASTM D5185m         0         0         0           Boron         ppm         ASTM D5185m         0         <1         <1         0           Barium         ppm         ASTM D5185m         0         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current	Lead	ppm	ASTM D5185m	>25	0	0	0
Tin			ASTM D5185m	>100	0	2	2
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         <1         <1         0           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         0         0         0           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1070         1022         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         >2060         3167         2569				>4	0	<1	0
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         <1			ASTM D5185m		0	0	0
Boron			ASTM D5185m		0	0	0
Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         60         58         55         59           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         l	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         58         55         59           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         "ASTM D7844         >6 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>&lt;1</th> <td>&lt;1</td> <td>0</td>	Boron	ppm	ASTM D5185m	0	<1	<1	0
Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>0</th><td>0</td><td>0</td></t<>	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         931         876         885           Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         % ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7415         >30         21.5	Molybdenum	ppm	ASTM D5185m	60	58	55	59
Calcium         ppm         ASTM D5185m         1070         1014         987         1037           Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm	Manganese	ppm	ASTM D5185m	0	0	<1	0
Phosphorus         ppm         ASTM D5185m         1150         1002         957         971           Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm	Magnesium	ppm	ASTM D5185m	1010	931	876	885
Zinc         ppm         ASTM D5185m         1270         1233         1122         1174           Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM	Calcium	ppm	ASTM D5185m	1070	1014	987	1037
Sulfur         ppm         ASTM D5185m         2060         3167         2569         2905           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Phosphorus	ppm	ASTM D5185m	1150	1002	957	971
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Zinc	ppm	ASTM D5185m	1270	1233	1122	1174
Silicon         ppm         ASTM D5185m         >25         4         5         5           Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Sulfur	ppm	ASTM D5185m	2060	3167	2569	2905
Sodium         ppm         ASTM D5185m         6         6         3           Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	CONTAMINANT	S	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         5         12         14           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Silicon	ppm	ASTM D5185m	>25	4	5	5
INFRA-RED	Sodium	ppm	ASTM D5185m		6	6	3
Soot %         %         *ASTM D7844 > 6         0.6         0.8         0.5           Nitration         Abs/cm         *ASTM D7624 > 20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415 > 30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 > 25         19.6         19.0         18.8	Potassium	ppm	ASTM D5185m	>20	5	12	14
Nitration         Abs/cm         *ASTM D7624         >20         10.7         10.1         9.8           Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Soot %	%	*ASTM D7844	>6	0.6	0.8	0.5
Sulfation         Abs/.1mm         *ASTM D7415         >30         21.5         21.9         20.9           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         19.6         19.0         18.8	Nitration	Abs/cm	*ASTM D7624	>20	10.7	10.1	9.8
Oxidation Abs/.1mm *ASTM D7414 >25 <b>19.6</b> 19.0 18.8	Sulfation	Abs/.1mm	*ASTM D7415	>30		21.9	20.9
	FLUID DEGRADA	NOITA	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	19.6	19.0	18.8
	Base Number (BN)	mg KOH/q			7.4		



# **OIL ANALYSIS REPORT**



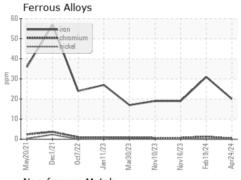


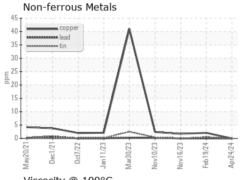


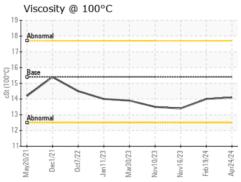
VISUAL		method				history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	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

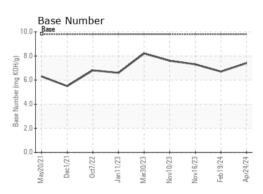
FLUID PROPI	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	14.0	13.4

## **GRAPHS**













Laboratory Sample No.

Lab Number : 06195204 Unique Number : 11057327

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0122367 Received : 30 May 2024

**Tested** : 31 May 2024 Diagnosed : 31 May 2024 - Wes Davis

6200 Elmridge Sterling Heights, MI

GFL Environmental - 415 - Michigan East

US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

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)