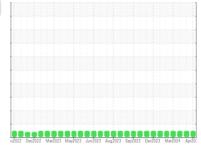


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id
412032-22
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

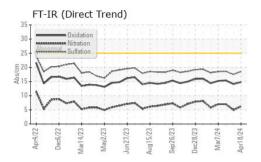
## **Fluid Condition**

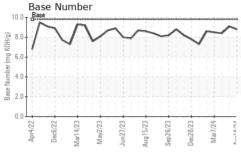
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

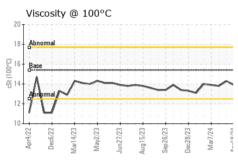
Sample Date	N SHP 15W40 (	GAL)	и2022 Dec202	2 Mar2023 May2023 Jun2	023 Aug2023 Sep2023 Dec2023 M	ar2024 Apr20;		
Sample Date	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Cample Date	Sample Number		Client Info		GFL0118722	GFL0110578	GFL0110550	
Machine Age         hrs         Client Info         6695         6771         86661           Dil Age         hrs         Client Info         150         200         600           Dil Changed         Client Info         Not Changd         Not Changd         NoRMAL           Sample Status         NoRMAL         NORMAL         NORMAL         NORMAL           CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >3.0         <1.0			Client Info		18 Apr 2024	21 Mar 2024	11 Mar 2024	
Contained   Client Info   Not Change   Northal   North	•	hrs	Client Info		-	6771	86661	
CONTAMINATION   method   militibase   current   history1   history2	Oil Age	hrs	Client Info		150	200	600	
CONTAMINATION	Oil Changed		Client Info		Not Changd	Not Changd	Changed	
Fuel	Sample Status				NORMAL	NORMAL	NORMAL	
Water Glycol         WC Method WC Method         >0.2         NEG NEG NEG         NEG NEG NEG           WEAR METALS         method Imit/base         current Limit/base         ned NEG NEG NEG         NEG NEG NEG           WEAR METALS         method Imit/base         current Limitory1         history2         history2           Iron         ppm ASTM D5185m         >120         4         <1         6           Chromium         ppm ASTM D5185m         >20         <1         <1         <1           Nickel         ppm ASTM D5185m         >2         0         0         0         0           Silver         ppm ASTM D5185m         >2         0         0         0         0           Aluminum         ppm ASTM D5185m         >20         2         1         2         -1         1         2         -1         1         2         -1         1         1         -1	CONTAMINAT	ION	method	limit/base	current	history1	history2	
NEG   Neg	Fuel		WC Method	>3.0	<1.0	<1.0	<1.0	
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	NEG	
Chromium   ppm   ASTM D5185m   >20   <1   <1   <1   <1   <1	WEAR METAL	.S	method	limit/base	current	history1	history2	
Nickel	ron	ppm	ASTM D5185m	>120	4	<1	6	
Nickel	Chromium		ASTM D5185m	>20	<1	<1	<1	
Description	Nickel		ASTM D5185m	>5	0	<1	2	
Silver	Titanium	ppm	ASTM D5185m	>2	0	0	0	
December   December	Silver		ASTM D5185m	>2	0	0	0	
Lead	Aluminum	ppm	ASTM D5185m	>20	2	1	2	
Princ	_ead		ASTM D5185m	>40	0	0	0	
Princ	Copper		ASTM D5185m	>330	2	<1	1	
ADDITIVES					0	2	<1	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0	
Soron   ppm   ASTM D5185m   0   0   0   0   0   0   0   0   0	Cadmium	ppm	ASTM D5185m		0	0	0	
Description	ADDITIVES		method	limit/base	current	history1	history2	
Molybdenum         ppm         ASTM D5185m         60         58         55         57           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	0	0	6	
Manganese         ppm         ASTM D5185m         0         <1         0         0           Magnesium         ppm         ASTM D5185m         1010         986         990         906           Calcium         ppm         ASTM D5185m         1070         1051         1068         1008           Phosphorus         ppm         ASTM D5185m         1150         1041         963         960           Zinc         ppm         ASTM D5185m         1270         1251         1260         1155           Sulfur         ppm         ASTM D5185m         2060         3476         3726         2921           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624	Barium	ppm	ASTM D5185m	0	0	0	0	
Magnesium         ppm         ASTM D5185m         1010         986         990         906           Calcium         ppm         ASTM D5185m         1070         1051         1068         1008           Phosphorus         ppm         ASTM D5185m         1150         1041         963         960           Zinc         ppm         ASTM D5185m         1270         1251         1260         1155           Sulfur         ppm         ASTM D5185m         2060         3476         3726         2921           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/.1mm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D74	Molybdenum	ppm	ASTM D5185m	60	58	55	57	
Calcium         ppm         ASTM D5185m         1070         1051         1068         1008           Phosphorus         ppm         ASTM D5185m         1150         1041         963         960           Zinc         ppm         ASTM D5185m         1270         1251         1260         1155           Sulfur         ppm         ASTM D5185m         2060         3476         3726         2921           CONTAMINANTS         method         limit/base         current         history1         history2           CONTAMINANTS         method         limit/base         current         history1         history2           Solicon         ppm         ASTM D5185m         >25         3         2         4           Solicon         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7415         >30         18.5         17.5         18.6 <td col<="" td=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>&lt;1</th><td>0</td><td>0</td></td>	<td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>&lt;1</th> <td>0</td> <td>0</td>	Manganese	ppm	ASTM D5185m	0	<1	0	0
Phosphorus         ppm         ASTM D5185m         1 150         1041         963         960           Zinc         ppm         ASTM D5185m         1270         1251         1260         1155           Sulfur         ppm         ASTM D5185m         2060         3476         3726         2921           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION         method<	Magnesium	ppm	ASTM D5185m	1010	986	990	906	
Zinc   ppm   ASTM D5185m   1270   1251   1260   1155     Sulfur   ppm   ASTM D5185m   2060   3476   3726   2921     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >25   3   2   4     Sodium   ppm   ASTM D5185m   2   2   2   2     Potassium   ppm   ASTM D5185m   >20   6   1   1     INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   >4   0.2   0.1   0.2     Nitration   Abs/cm   *ASTM D7624   >20   6.2   5.0   7.0     Sulfation   Abs/.1mm   *ASTM D7415   >30   18.5   17.5   18.6     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   14.8   14.1   15.4     Oxi	Calcium	ppm	ASTM D5185m	1070	1051	1068	1008	
Sulfur         ppm         ASTM D5185m         2060         3476         3726         2921           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Phosphorus	ppm	ASTM D5185m	1150	1041	963	960	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         2         2         2           Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Zinc	ppm	ASTM D5185m	1270	1251	1260	1155	
Silicon         ppm         ASTM D5185m         >25         3         2         4           Sodium         ppm         ASTM D5185m         2         2         2         2           Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Sulfur	ppm	ASTM D5185m	2060	3476	3726	2921	
Sodium	CONTAMINAN	ITS	method	limit/base	current	history1	history2	
Potassium         ppm         ASTM D5185m         >20         6         1         1           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Silicon	ppm	ASTM D5185m	>25	3	2	4	
INFRA-RED	Sodium	ppm	ASTM D5185m		2	2	2	
Soot %         %         *ASTM D7844 >4         0.2         0.1         0.2           Nitration         Abs/cm         *ASTM D7624 >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415 >30         18.5         17.5         18.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.8         14.1         15.4	Potassium	ppm	ASTM D5185m	>20	6	1	1	
Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	INFRA-RED		method	limit/base	current	history1	history2	
Nitration         Abs/cm         *ASTM D7624         >20         6.2         5.0         7.0           Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Soot %	%	*ASTM D7844	>4	0.2	0.1	0.2	
Sulfation         Abs/.1mm         *ASTM D7415         >30         18.5         17.5         18.6           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.1         15.4	Vitration	Abs/cm	*ASTM D7624	>20			7.0	
Oxidation								
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	14.1	15.4	
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.8	9.1	8.4	



## **OIL ANALYSIS REPORT**



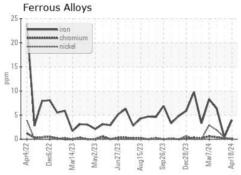


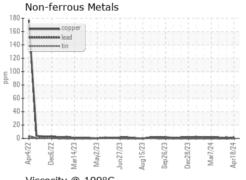


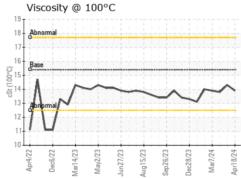
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

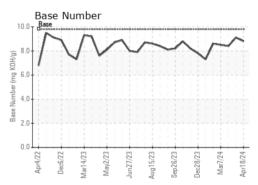
FLUID PROP	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.9	14.3	13.8

## **GRAPHS**













Certificate 12367

Laboratory Sample No.

Lab Number : 06158330 Unique Number : 10993753

: GFL0118722 Test Package : FLEET

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 23 Apr 2024

**Tested** : 24 Apr 2024 Diagnosed : 24 Apr 2024 - Wes Davis

GFL Environmental - 166 - Phenix City

18 Old Brickyard Rd Phenix City, AL

US 36869 Contact: DEAN PEACE JR

dean.peace@gflenv.com

\* - 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) T:

F: