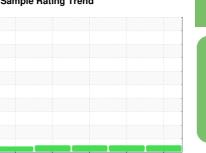


# **OIL ANALYSIS REPORT**

### Sample Rating Trend









Machine Id **713064** Component **Diesel Engine** 

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

# DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

### Contamination

There is no indication of any contamination in the

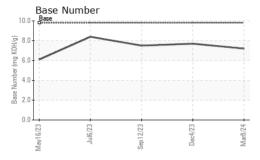
### **Fluid Condition**

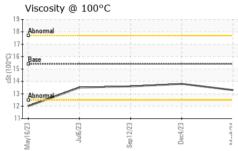
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Cample Number   Client Info   GFL0086983   GFL0086995   GFL0086995   GFL0086995   GFL0086995   GFL0086999   GFL008699   GFL008699   GFL008699   GFL008699   GFL008699   GFL0	N SHP 15W40 (-	GAL)	May2023	Jul2023	Sep2023 Dec2023	Mar2024	
Sample Date   Client Info   08 Mar 2024   04 Dec 2023   12 Sep 2025   Machine Age   hrs   Client Info   2000   2000   1364   2001   345   2001   3	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0086983	GFL0086959	GFL0086996
Oil Age	Sample Date		Client Info		08 Mar 2024	04 Dec 2023	12 Sep 2023
Dil Changed   Client Info   Not Changed   NORMAL   NORM	Machine Age	hrs	Client Info		2000	2000	1364
CONTAMINATION	Oil Age	hrs	Client Info		600	1091	450
CONTAMINATION	Oil Changed		Client Info		Not Changd	N/A	Not Changd
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water         WC Method         >0.2         NEG         A         NEG         ACH         NEG         NEG	CONTAMINA	ΓΙΟΝ	method	limit/base	current	history1	history2
WEAR METALS	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	WEAR METAI	LS	method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>120	10	8	12
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>5	2	1	1
Aluminum	Titanium	ppm	ASTM D5185m	>2	0	0	<1
Lead	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper	Aluminum	ppm	ASTM D5185m	>20	<1	<1	1
Princ	Lead	ppm	ASTM D5185m	>40	<1	0	0
Vanadium         ppm         ASTM D5185m         0         <1         <1           Cadmium         ppm         ASTM D5185m         0         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         5           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         59         56         62           Manganese         ppm         ASTM D5185m         0         <1         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         973         929         1065           Calcium         ppm         ASTM D5185m         1070         1093         912         1247           Phosphorus         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         curre	Copper	ppm	ASTM D5185m	>330	<1	2	2
Cadmium         ppm         ASTM D5185m         0         0         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         4         5           Barium         ppm         ASTM D5185m         0         0         0         0           Molybdenum         ppm         ASTM D5185m         0         <1	Tin	ppm	ASTM D5185m	>15	0	0	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         59         56         62           Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	2	4	5
Manganese         ppm         ASTM D5185m         0         <1         <1         <1           Magnesium         ppm         ASTM D5185m         1010         973         929         1065           Calcium         ppm         ASTM D5185m         1070         1093         912         1247           Phosphorus         ppm         ASTM D5185m         1150         996         880         1056           Zinc         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         20         <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium         ppm         ASTM D5185m         1010         973         929         1065           Calcium         ppm         ASTM D5185m         1070         1093         912         1247           Phosphorus         ppm         ASTM D5185m         1150         996         880         1056           Zinc         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         25         3         5         4           Sodium         ppm         ASTM D5185m         20         <1         0         3           Potassium         ppm         ASTM D5185m         >20         <1         0         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         8.1         8.1         8.3           Sulfation         Abs/.1mm         *ASTM D	Molybdenum	ppm	ASTM D5185m	60	59	56	62
Calcium         ppm         ASTM D5185m         1070         1093         912         1247           Phosphorus         ppm         ASTM D5185m         1150         996         880         1056           Zinc         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         25         3         5         4           Sodium         ppm         ASTM D5185m         22         3         4           Potassium         ppm         ASTM D5185m         >20         <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus         ppm         ASTM D5185m         1150         996         880         1056           Zinc         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1	Magnesium	ppm	ASTM D5185m	1010	973	929	1065
Zinc         ppm         ASTM D5185m         1270         1241         1108         1352           Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1	Calcium	ppm	ASTM D5185m	1070	1093	912	1247
Sulfur         ppm         ASTM D5185m         2060         3515         2820         3759           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1	Phosphorus	ppm	ASTM D5185m	1150	996	880	1056
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1	Zinc	ppm	ASTM D5185m	1270	1241	1108	1352
Silicon         ppm         ASTM D5185m         >25         3         5         4           Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1         0         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.3         0.3           Nitration         Abs/cm         *ASTM D7624         >20         8.1         8.1         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         19.1         18.8           FLUID DEGRADATION method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         15.4         14.9	Sulfur	ppm	ASTM D5185m	2060	3515	2820	3759
Sodium         ppm         ASTM D5185m         2         3         4           Potassium         ppm         ASTM D5185m         >20         <1	CONTAMINA	NTS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1         0         3           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.5         0.3         0.3           Nitration         Abs/cm         *ASTM D7624         >20         8.1         8.1         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         19.1         18.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         15.4         14.9	Silicon	ppm	ASTM D5185m	>25	3	5	4
INFRA-RED	Sodium	ppm	ASTM D5185m		2	3	4
Soot %         *ASTM D7844         >4         0.5         0.3         0.3           Nitration         Abs/cm         *ASTM D7624         >20         8.1         8.1         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         19.1         18.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         15.4         14.9	Potassium	ppm	ASTM D5185m	>20	<1	0	3
Nitration         Abs/cm         *ASTM D7624         >20         8.1         8.1         8.3           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         19.1         18.8           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         15.4         14.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         19.1         18.8           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.9         15.4         14.9	Soot %	%	*ASTM D7844	>4	0.5	0.3	0.3
FLUID DEGRADATION method limit/base current history1 history2  Oxidation Abs/.1mm *ASTM D7414 >25 14.9 15.4 14.9	Nitration	Abs/cm	*ASTM D7624	>20	8.1	8.1	8.3
Oxidation Abs/.1mm *ASTM D7414 >25 <b>14.9</b> 15.4 14.9	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.0	19.1	18.8
	FLUID DEGRA	DATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.9	15.4	14.9
					7.2		7.5



# **OIL ANALYSIS REPORT**

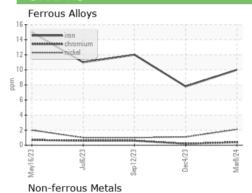


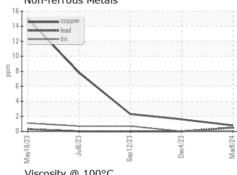


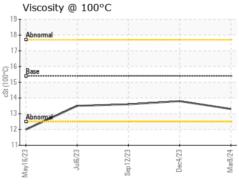
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

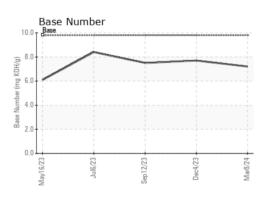
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.8	13.6

### **GRAPHS**













Certificate L2367

Laboratory Sample No.

: GFL0086983 Lab Number : 06115004 Unique Number: 10923837 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 11 Mar 2024 **Tested** 

: 12 Mar 2024 Diagnosed : 12 Mar 2024 - Wes Davis

GFL Environmental - 408 - Brown City 4235 M-53

BROWN CITY, MI US 48416

Contact: WILLIAM DEOLA

bdeola@gflenv.com T: (810)238-2836

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)