

# **OIL ANALYSIS REPORT**

# Sample Rating Trend NORMAL



Machine Id 914054 Component **Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (25 GAL)

# DIAGNOSIS

## Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

## Contamination

There is no indication of any contamination in the

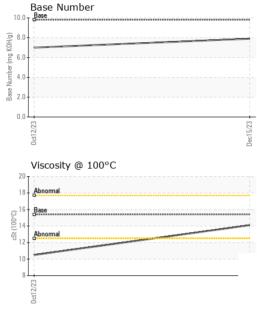
## **Fluid Condition**

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

Sample Date	N SHP 15W40 (2	5 GAL)		0ct2023	Dec2023		
Cample Date   Client Info   15 Dec 2023   12 Oct 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Machine Age	Sample Number		Client Info		GFL0105775	GFL0093155	
Dil Age	•		Client Info		15 Dec 2023	12 Oct 2023	
Contamper   Cont	Machine Age	hrs	Client Info		1094	770	
CONTAMINATION   method   militibase   current   history1   history2	Oil Age	hrs	Client Info		770	0	
CONTAMINATION	Oil Changed		Client Info		Not Changd	Changed	
Fuel	Sample Status				NORMAL	ATTENTION	
Water   WC Method   WC Method   NEG   Ne	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>3.0	<1.0	0.3	
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >120         11         58            Chromium         ppm         ASTM D5185m         >20         <1	Nater		WC Method	>0.2	NEG	NEG	
Chromium	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel   ppm   ASTM D5185m   >5   2   4	ron	ppm	ASTM D5185m	>120	11	58	
Silver	Chromium	ppm	ASTM D5185m	>20	<1	2	
Silver	Nickel	ppm	ASTM D5185m	>5	2	4	
Aluminum	Titanium	ppm	ASTM D5185m	>2	<1	<1	
December   December	Silver	ppm	ASTM D5185m	>2	0	<1	
Copper	Aluminum	ppm	ASTM D5185m	>20	2	5	
ASTM D5185m   Pope	_ead	ppm	ASTM D5185m	>40	0	0	
Vanadium         ppm         ASTM D5185m         0         <1            Cadmium         ppm         ASTM D5185m         0         0            ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         5         106            Barium         ppm         ASTM D5185m         0         0         0            Wolybdenum         ppm         ASTM D5185m         0         58         118            Wanganese         ppm         ASTM D5185m         0         <1         4            Magnesium         ppm         ASTM D5185m         1010         890         767            Calcium         ppm         ASTM D5185m         1070         1008         1526            Phosphorus         ppm         ASTM D5185m         1270         1174         928            Zinc         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1	Copper	ppm	ASTM D5185m	>330	29	249	
ADDITIVES	Γin	ppm	ASTM D5185m	>15	<1	5	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	
Soron   ppm   ASTM D5185m   0   0   0   0   0   0   0	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         60         58         118            Manganese         ppm         ASTM D5185m         0         <1	Boron	ppm	ASTM D5185m	0	5	106	
Manganese         ppm         ASTM D5185m         0         <1         4            Magnesium         ppm         ASTM D5185m         1010         890         767            Calcium         ppm         ASTM D5185m         1070         1008         1526            Phosphorus         ppm         ASTM D5185m         1150         1007         646            Zinc         ppm         ASTM D5185m         1270         1174         928            Sulfur         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium         ppm         ASTM D5185m         1010         890         767            Calcium         ppm         ASTM D5185m         1070         1008         1526            Phosphorus         ppm         ASTM D5185m         1150         1007         646            Zinc         ppm         ASTM D5185m         1270         1174         928            Sulfur         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         >20         3         10            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7414 </td <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>60</td> <td>58</td> <td>118</td> <td></td>	Molybdenum	ppm	ASTM D5185m	60	58	118	
Calcium         ppm         ASTM D5185m         1 070         1008         1 526            Phosphorus         ppm         ASTM D5185m         1 150         1007         646            Zinc         ppm         ASTM D5185m         1270         1174         928            Sulfur         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >3	Manganese	ppm	ASTM D5185m	0	<1	4	
Phosphorus         ppm         ASTM D5185m         1 150         1007         646            Zinc         ppm         ASTM D5185m         1270         1174         928            Sulfur         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base	Magnesium	ppm	ASTM D5185m	1010	890	767	
Zinc   ppm   ASTM D5185m   1270   1174   928       Sulfur   ppm   ASTM D5185m   2060   3110   2237       CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >25   7   69       Sodium   ppm   ASTM D5185m   3   3       Potassium   ppm   ASTM D5185m   >20   3   10       INFRA-RED   method   limit/base   current   history1   history2     Soot %   *ASTM D7844   >4   0.3   0.8       Nitration   Abs/cm   *ASTM D7624   >20   6.6   10.9       Sulfation   Abs/.1mm *ASTM D7415   >30   19.0   24.5       FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm *ASTM D7414   >25   14.8   23.0	Calcium	ppm	ASTM D5185m	1070	1008	1526	
Sulfur         ppm         ASTM D5185m         2060         3110         2237            CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	Phosphorus	ppm	ASTM D5185m	1150	1007	646	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         7         69            Sodium         ppm         ASTM D5185m         3         3            Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	Zinc	ppm	ASTM D5185m	1270	1174	928	
Solition   ppm   ASTM D5185m   >25   7   69	Sulfur	ppm	ASTM D5185m	2060	3110	2237	
Sodium   ppm   ASTM D5185m   3   3       Potassium   ppm   ASTM D5185m   >20   3   10       INFRA-RED   method   limit/base   current   history1   history2     Soot %	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         3         10            INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	Silicon	ppm	ASTM D5185m	>25	7	69	
INFRA-RED	Sodium	ppm	ASTM D5185m		3	3	
Soot %         %         *ASTM D7844 >4         0.3         0.8            Nitration         Abs/cm         *ASTM D7624 >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415 >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.8         23.0	Potassium	ppm	ASTM D5185m	>20	3	10	
Nitration         Abs/cm         *ASTM D7624         >20         6.6         10.9            Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	Soot %	%	*ASTM D7844	>4	0.3	0.8	
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.0         24.5            FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         23.0	Nitration	Abs/cm	*ASTM D7624	>20	6.6	10.9	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30		24.5	
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	23.0	
	Base Number (BN)	mg KOH/g			7.9	7.0	



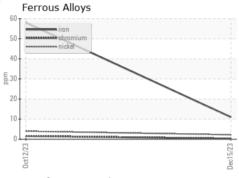
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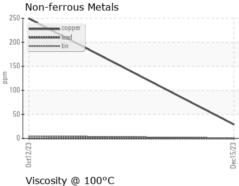


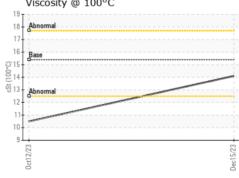
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance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

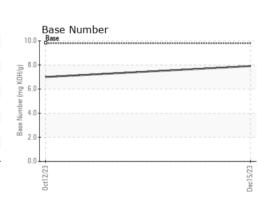
FLUID PROP	EHILO	method			flistory i	riistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	14.1	<b>△</b> 10.5	

## **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number

Unique Number : 10794311 Test Package : FLEET

: GFL0105775 : 06039082

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 19 Dec 2023 Diagnosed : 20 Dec 2023

Diagnostician : Wes Davis

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)

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

Report Id: GFL415 [WUSCAR] 06039082 (Generated: 12/20/2023 04:38:30) Rev: 1

Submitted By: Frank Wolak