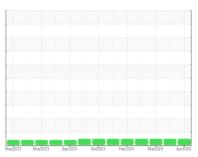


# **OIL ANALYSIS REPORT**

Sample Rating Trend



NORMAL



Machine Id
713027
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

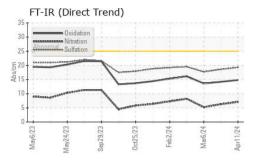
## **Fluid Condition**

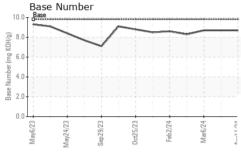
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

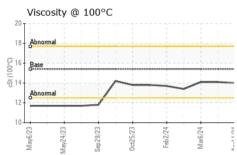
Comparison	AL)		May2023	May2023 Sep2023	Oct2023 Feb2024 Mar2024	Apr2024	
Company   Comp	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   1397   1274   1122     Dit Age   hrs   Client Info   150   300   600     Dit Changed   Client Info   150   300   600     Dit Changed   Client Info   Not Changd   Not Changd   Changed     NoRMAL   NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL     NORMAL   NORMAL   NORMAL     OCONTAMINATION   method   limit/base   current   history1   history2     Fuel   WC Method   NEG   NEG   NEG   NEG   NEG     Silycol   WC Method   NEG   NEG   NEG   NEG   NEG   NEG     NEG   NE	Sample Number		Client Info		GFL0105202	GFL0105106	GFL0105326
Dil Age	Sample Date		Client Info		11 Apr 2024	25 Mar 2024	06 Mar 2024
Client Info	Machine Age	hrs	Client Info		1397	1274	1122
CONTAMINATION   method   minit/base   current   history1   history2	Oil Age	hrs	Client Info		150	300	600
CONTAMINATION	Oil Changed		Client Info		Not Changd	Not Changd	Changed
Vicinity   Vicinity	Sample Status				NORMAL	NORMAL	NORMAL
Water	CONTAMINAT	ION	method	limit/base	current	history1	history2
NEG   Neg	-uel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS         method         limit/base         current         history1         history2           ron         ppm         ASTM D5185m         >100         7         9         2           Chromium         ppm         ASTM D5185m         >20         0         <1	Nater		WC Method	>0.2	NEG	NEG	NEG
Chromium	Glycol		WC Method		NEG	NEG	NEG
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2
Sickel		ppm		>100			
Description	Chromium	ppm	ASTM D5185m	>20	0	<1	0
Salver	Nickel	ppm		>4			
Aluminum	Γitanium	ppm	ASTM D5185m		0		0
December   December	Silver	ppm	ASTM D5185m	>3			
Copper	Aluminum	ppm	ASTM D5185m	>20	<1	1	0
Comparison	_ead	ppm	ASTM D5185m	>40	0		0
Anadium         ppm         ASTM D5185m         0         <1         0           Cadmium         ppm         ASTM D5185m         0         <1         0           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         2         3         0           Barium         ppm         ASTM D5185m         0         0         <1         0           Molybdenum         ppm         ASTM D5185m         0         0         <1         0           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         853         901         870           Calcium         ppm         ASTM D5185m         1070         989         1097         959           Phosphorus         ppm         ASTM D5185m         1270         1128         1227         1070           Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1 <th< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>&gt;330</td><th>0</th><td>2</td><td>0</td></th<>	Copper	ppm	ASTM D5185m	>330	0	2	0
ADDITIVES		ppm		>15		1	
ADDITIVES	/anadium	ppm	ASTM D5185m			<1	0
Soron   ppm   ASTM D5185m   0   2   3   0   0		ppm	ASTM D5185m		0	<1	0
Barium	ADDITIVES		method	limit/base	current		history2
Molybdenum         ppm         ASTM D5185m         60         52         57         55           Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         853         901         870           Calcium         ppm         ASTM D5185m         1070         989         1097         959           Phosphorus         ppm         ASTM D5185m         1150         977         1105         881           Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         5         1           Godium         ppm         ASTM D5185m         >20         0         2         0           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base<	Boron	ppm				3	
Manganese         ppm         ASTM D5185m         0         0         <1         0           Magnesium         ppm         ASTM D5185m         1010         853         901         870           Calcium         ppm         ASTM D5185m         1070         989         1097         959           Phosphorus         ppm         ASTM D5185m         1150         977         1105         881           Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         5         1           Godium         ppm         ASTM D5185m         >20         0         2         0           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         *ASTM D7844         >3         0.4	Barium	ppm	ASTM D5185m	0	0	<1	0
Magnesium         ppm         ASTM D5185m         1010         853         901         870           Calcium         ppm         ASTM D5185m         1070         989         1097         959           Phosphorus         ppm         ASTM D5185m         1150         977         1105         881           Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Bulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         25         2         5         1           Godium         ppm         ASTM D5185m         20         0         2         0           Potassium         ppm         ASTM D5185m         20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7414	Molybdenum	ppm	ASTM D5185m			57	
Calcium         ppm         ASTM D5185m         1070         989         1097         959           Phosphorus         ppm         ASTM D5185m         1150         977         1105         881           Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Gulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Golium         ppm         ASTM D5185m         >25         2         5         1           Goldium         ppm         ASTM D5185m         2         0         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2     <	Manganese	ppm	ASTM D5185m	0	0		0
Phosphorus         ppm         ASTM D5185m         1150         977         1105         881           Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Sollicon         ppm         ASTM D5185m         >25         2         5         1           Soldium         ppm         ASTM D5185m         20         0         2         0           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method	Magnesium	ppm					
Zinc         ppm         ASTM D5185m         1270         1128         1227         1070           Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         5         1           Sodium         ppm         ASTM D5185m         2         0         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414	Calcium	ppm	ASTM D5185m	1070	989	1097	959
Sulfur         ppm         ASTM D5185m         2060         3108         3275         2743           CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         5         1           Sodium         ppm         ASTM D5185m         2         0         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	Phosphorus	ppm	ASTM D5185m	1150	977	1105	
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         2         5         1           Sodium         ppm         ASTM D5185m         2         0         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	Zinc	ppm	ASTM D5185m	1270	1128	1227	1070
Solicon   ppm   ASTM D5185m   >25   2   5   1	Sulfur	ppm	ASTM D5185m	2060	3108	3275	2743
Sodium         ppm         ASTM D5185m         2         0         2           Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Vitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         0         2         0           INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	Silicon	ppm	ASTM D5185m	>25	2		
INFRA-RED	Sodium	ppm	ASTM D5185m		2	0	2
Soot %         %         *ASTM D7844 >3         0.4         0.3         0.2           Nitration         Abs/cm         *ASTM D7624 >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7415 >30         19.3         18.6         17.7           FLUID DEGRADATION method limit/base current history1         history2           Oxidation         Abs/.1mm         *ASTM D7414 >25         14.8         14.2         13.6	Potassium	ppm	ASTM D5185m	>20	0	2	0
Nitration         Abs/cm         *ASTM D7624         >20         7.1         6.3         5.2           Sulfation         Abs/.1mm         *ASTM D7615         >30         19.3         18.6         17.7           FLUID DEGRADATION method limit/base current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         19.3         18.6         17.7           FLUID DEGRADATION method limit/base current history1         history2           Dxidation         Abs/.1mm         *ASTM D7414         >25         14.8         14.2         13.6	Soot %	%	*ASTM D7844	>3	0.4	0.3	0.2
FLUID DEGRADATION     method     limit/base     current     history1     history2       Dxidation     Abs/.1mm     *ASTM D7414     >25     14.8     14.2     13.6	Nitration	Abs/cm	*ASTM D7624	>20	7.1	6.3	5.2
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	18.6	17.7
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2
Base Number (BN)   mg KOH/g   ASTM D2896   9.8   8.7   8.7   8.7	Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	14.2	13.6
	Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.7	8.7	8.7



## **OIL ANALYSIS REPORT**



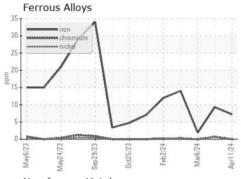


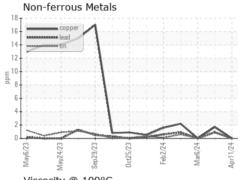


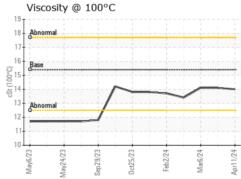
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

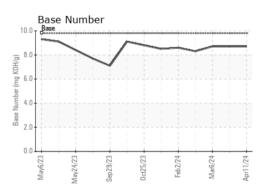
FLUID PROPE	RHES	metnoa	ilmit/base	current	nistory i	nistory2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.1	14.1

## **GRAPHS**













Certificate 12367

Laboratory

Sample No.

Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0105202 Lab Number : 06148205 Unique Number : 10978283

Received **Tested** Diagnosed

: 15 Apr 2024 : 15 Apr 2024

: 15 Apr 2024 - Wes Davis

GFL Environmental - 821 - Ozarks Hauling 33924 Olath Drive Lebanon, MO US 65536

Contact: Landen Johnson landen.johnson@gflenv.com T: (417)664-0010

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: GFL821 [WUSCAR] 06148205 (Generated: 04/15/2024 19:37:50) Rev: 1