

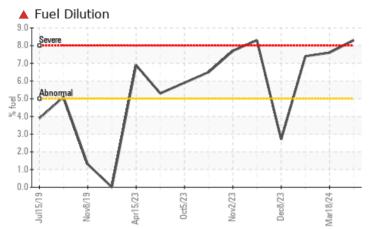
# **PROBLEM SUMMARY**

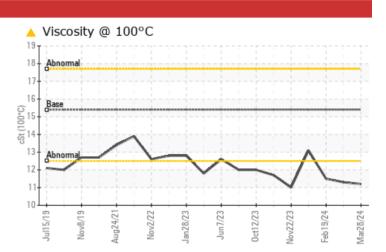
Machine Id

## 429042-402342

Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

## COMPONENT CONDITION SUMMARY





FUEL

### RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS								
Sample Status				SEVERE	ABNORMAL	ABNORMAL		
Fuel	%	ASTM D3524	>5	<b>a</b> 8.3	▲ 7.6	▲ 7.4		
Visc @ 100°C	cSt	ASTM D445	15.4	<b>11.2</b>	🔺 11.3	<b>1</b> 1.5		

Sample Rating Trend

Customer Id: GFL822 Sample No.: GFL0109124 Lab Number: 06137050 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>

DECOMMENDE				
RECOMMENDE	D ACTIONS			
Action	Status	Date	Done By	Description
Resample			?	We recommend an early resample
Check Fuel/injector System			?	We advise that you check the fuel i

e to monitor this condition.

injection system.

## HISTORICAL DIAGNOSIS



## 18 Mar 2024 Diag: Wes Davis

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.



### 19 Feb 2024 Diag: Wes Davis

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.



#### 08 Dec 2023 Diag: Wes Davis

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. Light fuel dilution occurring. No other contaminants were detected in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





# **OIL ANALYSIS REPORT**

Sample Rating Trend

FUEL

## Machine Id 429042-402342

Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

### Wear

All component wear rates are normal.

#### Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

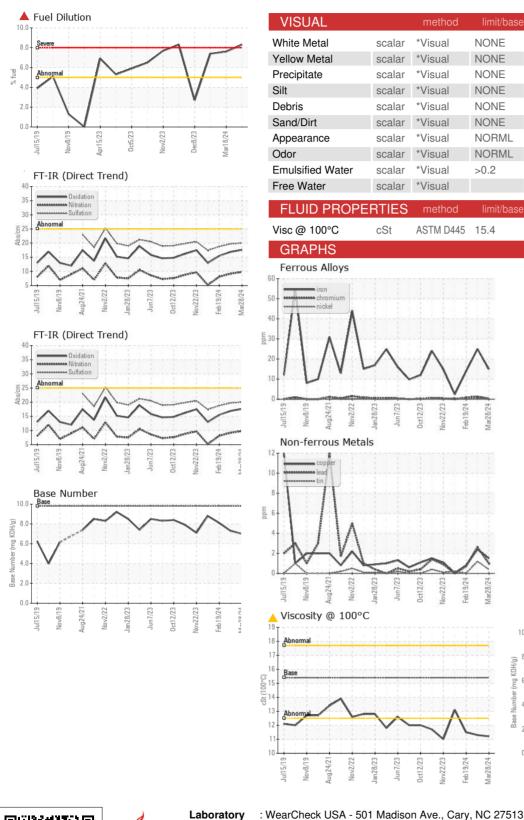
#### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

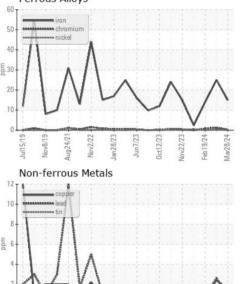
Sample Date   Client Info   28 Mar 2024   18 Mar 2024   19 Feb 2024     Machine Age   hrs   Client Info   16916   16826   16724     Oil Age   Client Info   600   150   150   150     Oil Changed   Client Info   Changed   Not Changd   ABNORMAL   ABNORMAL     CONTAMINATION   method   Imit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG     Glycol   WC Method   >0.2   NEG   NEG   NEG     Chromium   ppm   ASTM05185m   >110   15   25   14     Chromium   ppm   ASTM05185m   >2   0   <1   <1     Nickel   ppm   ASTM05185m   >2   0   <0   <1     Aluminum   ppm   ASTM05185m   >2   0   <1   0     Aluminum   ppm   ASTM05185m   >2   2   <1   0     A	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age   hrs   Client Info   16916   16826   16724     Oil Age   hrs   Client Info   600   150   150     Oil Changed   Client Info   Changed   Not Changd   Not Changd     Sample Status   Imit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG     WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM 05185m   >44   <1   1   <1     Ohromium   ppm   ASTM 05185m   >2   0   <1   0     Nickel   ppm   ASTM 05185m   >2   0   0   0   0     Aluminum   ppm   ASTM 05185m   >2   1   3   <1   0     Vanadium   ppm   ASTM 05185m   >4   <1   0   0     Adminum   ppm   ASTM 05185m   0   <1   0   0	Sample Number		Client Info		GFL0109124	GFL0109168	GFL0109236
Oil Age   hrs   Client Info   600   150   150     Oil Changed   Client Info   Changed   Not Changd   ABNORMAL     CONTAMINATION   method   limit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG     Giycol   WC Method   >0.2   NEG   NEG   NEG     Water   WC Method   >110   15   25   14     Chromium   ppm   ASTM D5185m   >110   15   25   14     Chromium   ppm   ASTM D5185m   >110   15   25   14     Chromium   ppm   ASTM D5185m   >2   0   0   0     Silver   ppm   ASTM D5185m   >25   2   3   2   1     Copper   ppm   ASTM D5185m   >4   1   1   0     Adaminum   ppm   ASTM D5185m   >4   1   1   0     Copper	Sample Date		Client Info		28 Mar 2024	18 Mar 2024	19 Feb 2024
Oil Changed Sample Status   Client Info   Changed SEVERE   Not Changed ABNORMAL   Not Changed ABNORMAL     CONTAMINATION   method   Imit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG     Glycol   WC Method   >0.2   NEG   NEG   NEG     WEAR METALS   method   Imit/base   current   history1   history2     Iron   ppm   ASTM D5185m   >11   1   1   1     Nickel   ppm   ASTM D5185m   >2   0   -1   0     Nickel   ppm   ASTM D5185m   >2   0   0   0     Aluminum   ppm   ASTM D5185m   >4   1   1   0     Copper   ppm   ASTM D5185m   >4   1   0   0     Cadmium   ppm   ASTM D5185m   0   0   -1   0     Admotinum   ppm   ASTM D5185m   0   0   1   0 </th <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>16916</th> <th>16826</th> <th>16724</th>	Machine Age	hrs	Client Info		16916	16826	16724
Sample Status   Initial Sevent   ABNORMAL   ABNORMAL   ABNORMAL     CONTAMINATION   method   imit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG     Glycol   WC Method   >0.2   NEG   NEG   NEG     WEAR METALS   method   imit/base   current   history1   history2     Iron   ppm   ASTM D5185m   >110   15   25   14     Chromium   ppm   ASTM D5185m   >22   0   -1   0     Nickel   ppm   ASTM D5185m   >25   2   3   -2     Lead   ppm   ASTM D5185m   >45   1   3   -1     Copper   ppm   ASTM D5185m   >45   1   0   -1     Cadmium   ppm   ASTM D5185m   0   -1   0   -1     Cadmium   ppm   ASTM D5185m   0   -1   0   -1	Oil Age	hrs	Client Info		600	150	150
CONTAMINATION   method   limit/base   current   history1   history2     Water   WC Method   >0.2   NEG   NEG   NEG   NEG     Glycol   WC Method   >0.2   NEG   NEG   NEG   NEG     WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM D5185n   >4   <1   1   <1     Nickel   ppm   ASTM D5185n   >2   0   <1   0     Silver   ppm   ASTM D5185n   >2   0   0   0     Aluminum   ppm   ASTM D5185n   >25   2   3   2     Lead   ppm   ASTM D5185n   >45   1   0   0     Vanadium   ppm   ASTM D5185n   >4   <1   1   0     Vanadium   ppm   ASTM D5185n   0   2   0   0     Actimum   ppm   ASTM D5185n   0   1   0	•		Client Info		Changed	Not Changd	Not Changd
Water   WC Method   >0.2   NEG   NEG   NEG     Glycol   WC Method   Imil/base   current   history1   history2     Iron   ppm   ASTM D5165m   >44   <1   1   <1     Nickel   ppm   ASTM D5165m   >2   0   <1   0     Titanium   ppm   ASTM D5165m   >2   0   <1   <1   <1     Silver   ppm   ASTM D5165m   >2   0   <1   <1   <1     Silver   ppm   ASTM D5165m   >2   0   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1<   <1<   <1<   <1<   <1<   <1<   <1<   <1<   <1<   <1   <1<   <1<   <1<   <1   <1<   <1   <1   <1<   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   <1   1   <1   1	Sample Status				SEVERE	ABNORMAL	ABNORMAL
Glycol   WC Method   NEG   NEG   NEG   NEG     WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM D5185m   >110   15   25   14     Chromium   ppm   ASTM D5185m   >2   0   <1   0     Titanium   ppm   ASTM D5185m   >2   0   <1   0     Silver   ppm   ASTM D5185m   >2   0   0   0     Aluminum   ppm   ASTM D5185m   >2   2   3   2     Lead   ppm   ASTM D5185m   >45   1   3   <1     Copper   ppm   ASTM D5185m   >4   <1   1   0     Cadmium   ppm   ASTM D5185m   >4   <1   1   0     Cadmium   ppm   ASTM D5185m   0   <11   0   0     ADDTIVES   method   Imit/base   current   history1   history2	CONTAMINAT	ION	method	limit/base	current	history1	history2
WEAR METALS   method   limit/base   current   history1   history2     Iron   ppm   ASTM D5185m   >110   15   25   14     Ohromium   ppm   ASTM D5185m   >2   0   <1   <1     Nickel   ppm   ASTM D5185m   >2   0   <1   0     Titanium   ppm   ASTM D5185m   >2   0   0   0     Aluminum   ppm   ASTM D5185m   >2   2   3   2     Lead   ppm   ASTM D5185m   >45   1   3   <1   0     Vanadium   ppm   ASTM D5185m   >45   1   0    0      Cadmium   ppm   ASTM D5185m   0   <1   0   0      Manadium   ppm   ASTM D5185m   0   2   0   0     Cadmium   ppm   ASTM D5185m   0   1   0   0     Borion   ppm   ASTM D5185	Water		WC Method	>0.2	NEG	NEG	NEG
Iron   ppm   ASTM D5185m   >110   15   25   14     Chromium   ppm   ASTM D5185m   >4   <1   1   <1     Nickel   ppm   ASTM D5185m   >2   0   <1   0     Titanium   ppm   ASTM D5185m   >2   0   0   0     Silver   ppm   ASTM D5185m   >2   2   3   2     Lead   ppm   ASTM D5185m   >2   2   2   <1     Copper   ppm   ASTM D5185m   >85   2   2   <1   0     Vanadium   ppm   ASTM D5185m   >4   <1   1   0   0     Cadmium   ppm   ASTM D5185m   0   2   0   0   0     Boron   ppm   ASTM D5185m   0   2   0   0   0     Molybdenum   ppm   ASTM D5185m   1010   911   1309   949   209   1209   1209   1209<	Glycol		WC Method		NEG	NEG	NEG
Chromium   ppm   ASTM D5185m   >4   <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel   ppm   ASTM D5185m   >2   0   <1	Iron	ppm	ASTM D5185m	>110	15	25	14
Titanium   ppm   ASTM D5185m   0   <1	Chromium	ppm	ASTM D5185m	>4	<1		<1
Silver   ppm   ASTM D5185m   >2   0   0   0     Aluminum   ppm   ASTM D5185m   >25   2   3   2     Lead   ppm   ASTM D5185m   >45   1   3   <1	Nickel	ppm	ASTM D5185m	>2	0	<1	0
Aluminum   ppm   ASTM D5185m   >25   2   3   2     Lead   ppm   ASTM D5185m   >45   1   3   <1     Copper   ppm   ASTM D5185m   >45   1   3   <1     Copper   ppm   ASTM D5185m   >45   2   2   <1     Tin   ppm   ASTM D5185m   >4   <1   1   0     Vanadium   ppm   ASTM D5185m   0   <1   0      Cadmium   ppm   ASTM D5185m   0   2   0   0     ADDITIVES   method   limit/base   current   history1   history2     Boron   ppm   ASTM D5185m   0   2   0   0     Molybdenum   ppm   ASTM D5185m   0   2   0   0     Marganese   ppm   ASTM D5185m   0   <11   1   <1     Marganesium   ppm   ASTM D5185m   1010   9111   1309	Titanium	ppm	ASTM D5185m		0	<1	<1
Lead   ppm   ASTM D5185m   >45   1   3   <1		ppm			-		
Copper   ppm   ASTM D5185m   >85   2   2   <1		ppm			_		_
Tin   ppm   ASTM D5185m   >4   <1		ppm		>45			
Vanadium   ppm   ASTM D5185m   0   <1	••	ppm			_		
Cadmium   ppm   ASTM D5185m   0   <1		ppm		>4			
ADDITIVES   method   limit/base   current   history1   history2     Boron   ppm   ASTM D5185m   0   2   0   0     Barium   ppm   ASTM D5185m   0   0   1   0     Molybdenum   ppm   ASTM D5185m   60   56   85   56     Magnesium   ppm   ASTM D5185m   0   <1   1   <1     Magnesium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Sodium   ppm   ASTM D5185m <t< th=""><th></th><td></td><td></td><td></td><th>-</th><td></td><td></td></t<>					-		
Boron   ppm   ASTM D5185m   0   2   0   0     Barium   ppm   ASTM D5185m   0   0   1   0     Molybdenum   ppm   ASTM D5185m   60   56   85   56     Manganese   ppm   ASTM D5185m   0   <1   1   <1     Magnesium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Sodium   ppm   ASTM D5185m		ppm	ASTM D5185m		0	<1	0
Barium   ppm   ASTM D5185m   0   0   1   0     Molybdenum   ppm   ASTM D5185m   60   56   85   56     Manganese   ppm   ASTM D5185m   0   <1   1   <1     Magnesium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1070   9999   1539   1025     Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7.4     Puel   %   ASTM D5185m							
Molybdenum   ppm   ASTM D5185m   60   56   85   56     Manganese   ppm   ASTM D5185m   0   <1   1   <1     Magnesium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1070   9999   1539   1025     Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m							
Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	0	2	0	0
Magnesium   ppm   ASTM D5185m   1010   911   1309   949     Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     Sodium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   <	Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	0	0
Calcium   ppm   ASTM D5185m   1070   999   1539   1025     Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   >20   0   3   4     Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/.mm<*ASTM D7624   >20   9.8	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 56	0 1 85	0 0 56
Phosphorus   ppm   ASTM D5185m   1150   1001   1460   1011     Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   >30   4   5   11     Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D3524   >5   ▲ 8.3   ▲ 7.6   ▲ 7.4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/m   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/1mm   *ASTM D7415	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 56 <1	0 1 85 1	0 0 56 <1
Zinc   ppm   ASTM D5185m   1270   1213   1749   1209     Sulfur   ppm   ASTM D5185m   2060   3203   4552   2949     CONTAMINANTS   method   limit/base   current   history1   history2     Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   >30   4   5   11     Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	2 0 56 <1 911	0 1 85 1 1309	0 0 56 <1 949
SulfurppmASTM D5185m2060320345522949CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>30497SodiumppmASTM D5185m>304511PotassiumppmASTM D5185m>20034Fuel%ASTM D5185m>20034Soot %%ASTM D3524>5A 8.3A 7.67.4INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.70.60.4NitrationAbs/cm*ASTM D7624>209.89.28.1SulfationAbs/1mm*ASTM D7415>3020.019.718.8FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/1mm*ASTM D7414>2517.616.915.5	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	2 0 56 <1 911 999	0 1 85 1 1309 1539	0 0 56 <1 949 1025
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>30497SodiumppmASTM D5185m4511PotassiumppmASTM D5185m>20034Fuel%ASTM D5185m>20034Soot %%ASTM D3524>5▲ 8.3▲ 7.6▲ 7.4INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.70.60.4NitrationAbs/cm*ASTM D7624>209.89.28.1SulfationAbs/.imm*ASTM D7415>3020.019.718.8FLUID DEGRADATION methodlimit/basecurrenthistory1history2OxidationAbs/.imm*ASTM D7414>2517.616.915.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150	2 0 56 <1 911 999 1001	0 1 85 1 1309 1539 1460	0 0 56 <1 949 1025 1011
Silicon   ppm   ASTM D5185m   >30   4   9   7     Sodium   ppm   ASTM D5185m   4   5   11     Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D3524   >5   ▲ 8.3   ▲ 7.6   ▲ 7.4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	2 0 56 <1 911 999 1001 1213	0 1 85 1 1309 1539 1460 1749	0 0 56 <1 949 1025 1011 1209
Sodium   ppm   ASTM D5185m   4   5   11     Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D5185m   >20   0   3   4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.imm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.imm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 56 <1 911 999 1001 1213 3203	0 1 85 1 1309 1539 1460 1749 4552	0 0 56 <1 949 1025 1011 1209 2949
Potassium   ppm   ASTM D5185m   >20   0   3   4     Fuel   %   ASTM D3524   >5   ▲ 8.3   ▲ 7.6   ▲ 7.4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 56 <1 911 999 1001 1213 3203 current	0 1 85 1 1309 1539 1460 1749 4552 history1	0 0 56 <1 949 1025 1011 1209 2949 history2
Fuel   %   ASTM D3524   >5   & 8.3   ^ 7.6   7.4     INFRA-RED   method   limit/base   current   history1   history2     Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 56 <1 911 999 1001 1213 3203 <u>current</u> 4	0 1 85 1 1309 1539 1460 1749 4552 history1 9	0 0 56 <1 949 1025 1011 1209 2949 history2 7
Soot %   %   *ASTM D7844   >3   0.7   0.6   0.4     Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 <b>limit/base</b>	2 0 56 <1 911 999 1001 1213 3203 <u>current</u> 4 4	0 1 85 1 1309 1539 1460 1749 4552 history1 9 5	0 0 56 <1 949 1025 1011 1209 2949 history2 7 11
Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>limit/base</b> >30	2 0 56 <1 911 999 1001 1213 3203 <u>current</u> 4 4 0	0 1 85 1 1309 1539 1460 1749 4552 history1 9 5 3	0 0 56 <1 949 1025 1011 1209 2949 <b>history2</b> 7 11 4
Nitration   Abs/cm   *ASTM D7624   >20   9.8   9.2   8.1     Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 >20 >5	2 0 56 <1 911 999 1001 1213 3203 Current 4 4 0 0 ▲ 8.3	0 1 85 1 1309 1539 1460 1749 4552 <b>history1</b> 9 5 3 ▲ 7.6	0 0 56 <1 949 1025 1011 1209 2949 history2 7 11 4 4 × 7.4
Sulfation   Abs/.1mm   *ASTM D7415   >30   20.0   19.7   18.8     FLUID DEGRADATION   method   limit/base   current   history1   history2     Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 >5	2 0 56 <1 911 999 1001 1213 3203 Current 4 4 4 0 8.3 Current	0 1 85 1 1309 1539 1460 1749 4552 <b>history1</b> 9 5 3 ▲ 7.6 <b>history1</b>	0 0 56 <1 949 1025 1011 1209 2949 bistory2 7 11 4 4 × 7.4
Oxidation   Abs/.1mm   *ASTM D7414   >25   17.6   16.9   15.5	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 >5 <b>Imit/base</b> >3	2 0 56 <1 911 999 1001 1213 3203 current 4 4 0 & 8.3 current 0.7	0 1 85 1 1309 1539 1460 1749 4552 <b>history1</b> 9 5 3 ↓ 7.6 <b>history1</b> 0.6	0 0 56 <1 949 1025 1011 1209 2949 <b>history2</b> 7 11 4 4 ▼ 7.4 <b>history2</b> 0.4
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 >5 <b>imit/base</b> >3 >20	2 0 56 <1 911 999 1001 1213 3203 Current 4 4 4 0 & 8.3 Current 0.7 9.8	0 1 85 1 1309 1539 1460 1749 4552 <b>history1</b> 9 5 3 ↓ 7.6 <b>history1</b> 0.6 9.2	0 0 56 <1 949 1025 1011 1209 2949 history2 7 11 4 7 .11 4 7.4 
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Imit/base</b> >30 >20 >5 <b>Imit/base</b> >3 >20 >3	2 0 56 <1 911 999 1001 1213 3203 <b>current</b> 4 4 4 0 & 8.3 <b>current</b> 0.7 9.8 20.0	0 1 85 1 1309 1539 1460 1749 4552 <b>bistory1</b> 9 5 3 ▲ 7.6 <b>bistory1</b> 0.6 9.2 19.7	0 0 56 <1 949 1025 1011 1209 2949 <b>history2</b> 7 11 4 7 7 11 4 <b>k</b> 7.4 <b>history2</b> 0.4 8.1 18.8
Base Number (BN)   mg KOH/g   ASTM D2896   9.8   7.0   7.3   8.1	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>imit/base</b> >30 <b>imit/base</b> >3 >20 >3 30	2 0 56 <1 911 999 1001 1213 3203 Current 4 4 4 0 & 8.3 Current 0.7 9.8 20.0 Current	0 1 85 1 1309 1539 1460 1749 4552 <b>history1</b> 9 5 3 ▲ 7.6 <b>history1</b> 0.6 9.2 19.7	0 0 56 <1 949 1025 1011 1209 2949 <b>history2</b> 7 11 4 ▼ 7.4 ► 7.4 ► 11 4 0.4 8.1 18.8



# **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
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	<b>11.2</b>	<b>1</b> 1.3	<b>1</b> 1.5
GRAPHS						
Ferrous Allovs						



28/23

Received

Diagnosed

Tested

: GFL0109124

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

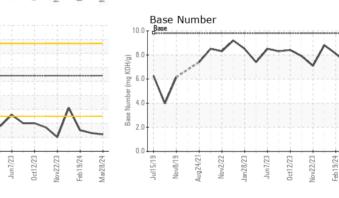
Test Package : FLEET ( Additional Tests: PercentFuel )

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Sample No.

Lab Number : 06137050

Unique Number : 10956515



1ar28/7 c/19/14

: 03 Apr 2024

: 05 Apr 2024

GFL Environmental - 822 - Springfield Hauling 2120 West Bennett Street Springfield, MO : 05 Apr 2024 - Wes Davis US 65807 Contact: Dennis Moore dennis.moore@gflenv.com T: (417)403-3641 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) E:

Report Id: GFL822 [WUSCAR] 06137050 (Generated: 04/05/2024 08:12:27) Rev: 1

Certificate 12367

Submitted By: Dennis Moore

Mar28/24