

### **OIL ANALYSIS REPORT**

Sample Rating Trend

<u>Iselelleeslesses</u>

NORMAL

Machine Id

## 221020-630253

### 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 INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0118173	GFL0109165	GFL0109183
Sample Date		Client Info		10 Apr 2024	20 Mar 2024	21 Feb 2024
Machine Age	hrs	Client Info		22209	22065	21929
Oil Age	hrs	Client Info		700	150	700
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	21	14	43
Chromium	ppm	ASTM D5185m		<1	<1	2
Nickel	ppm	ASTM D5185m		0	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	2	7
Lead	ppm	ASTM D5185m		0	0	0
Copper	ppm	ASTM D5185m		1	<1	2
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m	210	0	0	<1
Cadmium						0
				0	()	0
	ppm	ASTM D5185m	limit/base	0 current	0 history1	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 0	history1 <1	history2 1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 0 0	history1 <1 0	history2 1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 0 0 57	history1 <1 0 56	history2 1 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 0 0 57 <1	history1 <1 0 56 0	history2 1 0 61 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	Current 0 0 57 <1 905	history1 <1 0 56 0 980	history2 1 0 61 <1 878
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current           0           0           57           <1           905           1003	history1 <1 0 56 0 980 1075	history2 1 0 61 <1 878 951
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current           0           57           <1           905           1003           999	history1 <1 0 56 0 980 1075 1084	history2 1 0 61 <1 878 951 980
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current           0           0           57           <1           905           1003           999           1192	history1 <1 0 56 0 980 1075 1084 1260	history2 1 0 61 <1 878 951 980 1168
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 0 0 57 <1 905 1003 999 1192 3196	history1 <1 0 56 0 980 1075 1084 1260 3614	history2 1 0 61 <1 878 951 980 1168 2788
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	current           0           0           57           <1           905           1003           999           1192           3196           current	history1         <1         0         56         0         980         1075         1084         1260         3614         history1	history2 1 0 61 <1 878 951 980 1168 2788 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current           0           0           57           <1           905           1003           999           1192           3196           current           3	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3	history2         1         0         61         <1         878         951         980         1168         2788         history2         5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	current           0           0           57           <1           905           1003           999           1192           3196           current           3           10	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <b>Jimit/base</b> >25	current           0           0           57           <1           905           1003           999           1192           3196           current           3           10           6	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current         0         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	current         0         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current         0.8	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1         0.5	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2         1.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	current         0         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current         0.8         8.7	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1         0.5         7.1	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2         1.5         12.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	current         0         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current         0.8	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1         0.5	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2         1.5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 20 20 20 20 20 20 20 20 20	current         0         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current         0.8         8.7	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1         0.5         7.1	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2         1.5         12.9
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 20 320 33 20 20 20	current         0         57         <1         905         1003         999         1192         3196         current         3         10         6         current         0.8         8.7         19.2	history1         <1         0         56         0         980         1075         1084         1260         3614         history1         3         6         2         history1         0.5         7.1         18.3	history2         1         0         61         <1         878         951         980         1168         2788         history2         5         20         8         history2         1.5         12.9         23.0

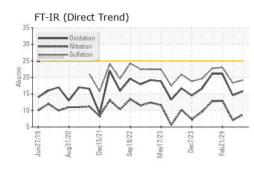


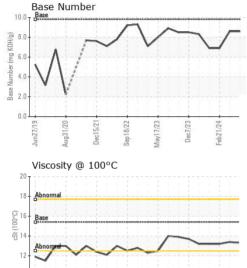
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Jun27/19

Aug 31/20

# **OIL ANALYSIS REPORT**





Dec15/21

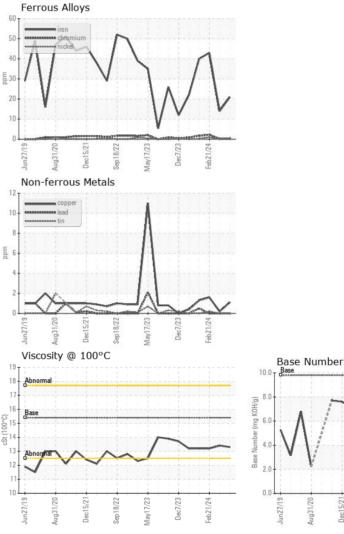
Sep18/22

Mav17/23

Dec7/23

Feb21/24

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	13.3	13.4	13.2
GRAPHS						



Aug31/20 -Dec7/23 Dec15/21 Sep18/22 eb21/24 May17/23

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 822 - Springfield Hauling Sample No. : GFL0118173 Received : 24 Apr 2024 2120 West Bennett Street Lab Number : 06158913 Tested : 25 Apr 2024 Springfield, MO Unique Number : 10994336 Diagnosed : 25 Apr 2024 - Wes Davis US 65807 Test Package : FLEET Contact: Dennis Moore Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. dennis.moore@gflenv.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (417)403-3641 F:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)