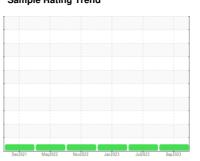


# **OIL ANALYSIS REPORT**

## Sample Rating Trend









Machine Id 922010 Component 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

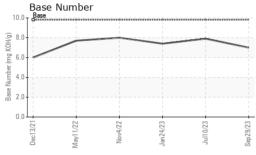
### **Fluid Condition**

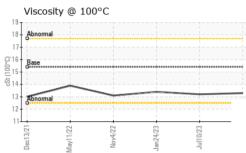
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

`		Dec2021	May2022 Nov2022	Jan 2023 Jul 2023	Sep2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0082512	GFL0082508	GFL0064242
Sample Date		Client Info		29 Sep 2023	10 Jul 2023	24 Jan 2023
Machine Age	hrs	Client Info		29444	28910	27707
Oil Age	hrs	Client Info		604	609	604
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	9	8	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	1
Lead	ppm	ASTM D5185m	>40	<1	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
				· ·	O .	-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method	limit/base			
		method	0	current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 2	history1	history2
Boron Barium	ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 2 0	history1 0 0	history2 2 0
Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 2 0 60	history1 0 0 62	history2 2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	method  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m	0 0 60 0	current 2 0 60 <1	history1 0 0 62 <1	history2 2 0 61 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method  ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 2 0 60 <1 927	history1  0  0 62 <1 1012	history2 2 0 61 <1 917
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070	current 2 0 60 <1 927 1015	history1  0 0 62 <1 1012 1111	history2 2 0 61 <1 917 1030
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150	current 2 0 60 <1 927 1015 980	history1  0  0 62 <1 1012 1111 1027	history2  2  0 61 <1 917 1030 940
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  2  0  60  <1  927  1015  980  1222	history1  0  0 62 <1 1012 1111 1027 1245	history2  2  0 61 <1 917 1030 940 1153
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 2 0 60 <1 927 1015 980 1222 2876	history1  0  0 62 <1 1012 1111 1027 1245 3385	history2  2  0 61 <1 917 1030 940 1153 3236
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  2  0  60  <1  927  1015  980  1222  2876  current	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1	history2  2  0 61 <1 917 1030 940 1153 3236 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current  2  0  60  <1  927  1015  980  1222  2876  current  4	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1 3	history2  2  0  61  <1  917  1030  940  1153  3236  history2  4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current  2  0  60  <1  927  1015  980  1222  2876  current  4  5	history1  0  0  62  <1 1012 1111 1027 1245 3385 history1  3  4	history2  2  0 61 <1 917 1030 940 1153 3236 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current  2  0  60  <1  927  1015  980  1222  2876  current  4  5  <1	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1  3 4 0	history2  2  0 61 <1 917 1030 940 1153 3236 history2 4 2 0
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 60 0 1010 1070 1150 1270 2060 limit/base >25	current  2  0 60 <1 927 1015 980 1222 2876  current  4 5 <1	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1 3 4 0 history1	history2  2  0 61 <1 917 1030 940 1153 3236 history2 4 2 0 history2
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 ppm	method ASTM D5185m  method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  2  0  60  <1  927  1015  980  1222  2876  current  4  5  <1  current  0.5	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1  3 4 0 history1 0.5	history2 2 0 61 <1 917 1030 940 1153 3236 history2 4 2 0 history2 0
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  method  ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current  2 0 60 <1 927 1015 980 1222 2876  current 4 5 <1 current 0.5 8.6	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1 3 4 0 history1 0.5 8.7	history2 2 0 61 <1 917 1030 940 1153 3236 history2 4 2 0 history2 0.4 8.9
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  method  ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D5185m  *ASTM D5185m ASTM D7844  *ASTM D7624  *ASTM D76145	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	current  2  0  60  <1  927  1015  980  1222  2876  current  4  5  <1  current  0.5  8.6  20.0	history1  0  0 62 <1 1012 1111 1027 1245 3385 history1  3 4 0 history1 0.5 8.7 19.4	history2 2 0 61 <1 917 1030 940 1153 3236 history2 4 2 0 history2 0.4 8.9 19.2



# **OIL ANALYSIS REPORT**





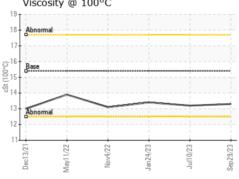
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

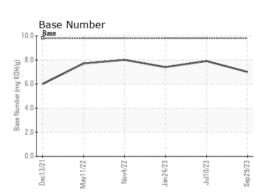
FLUID PROPE	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.2	13.4

# **GRAPHS** Ferrous Alloys

# E 10

Non-ferrous Metals Viscosity @ 100°C









Laboratory Sample No. Lab Number Test Package : FLEET

Unique Number : 10674795

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0082512 : 05968244

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

Received Diagnosed

: 03 Oct 2023 : 04 Oct 2023 Diagnostician : Wes Davis

GFL Environmental - 947 - WB Horicon HC

N7296 County Rd V Horicon, WI US 53032

Contact: Tim Kieffer tim.kieffer@gflenv.com T: (608)219-0288

\* - 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: GFL947 [WUSCAR] 05968244 (Generated: 10/04/2023 13:48:04) Rev: 1

Submitted By: See also GFL935 - Tim Kieffer