

OIL ANALYSIS REPORT

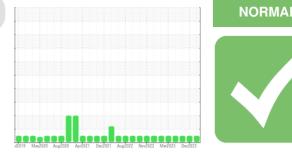
Sample Rating Trend

NORMAL

Area (YA147104) Machine Id 3880

Diesel Engine PETRO CANADA DURON SHP 15W40 (10 GAL)

SAMPLE INFORMATION method



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.

Comple Number		Client Info		GFL0111026	GFL0098529	GFL0087790
Sample Number		Client Info		05 Apr 2024	28 Dec 2023	
Sample Date Machine Age	hrs	Client Info		15703	14300	04 Aug 2023 13754
Oil Age	hrs	Client Info		600	0	610
Oil Changed	1115	Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
•				NORMAL	NORMAL	NORIVIAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	11	4	4
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	6	4	1
Lead	ppm	ASTM D5185m	>40	1	1	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	limit/base	current 2	history1 2	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	2	2	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	2 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 61	2 0 57	2 0 61
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 61 <1	2 0 57 <1	2 0 61 <1
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 61 <1 957	2 0 57 <1 939	2 0 61 <1 879
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 61 <1 957 1086	2 0 57 <1 939 1038	2 0 61 <1 879 1107
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	0 0 60 0 1010 1070 1150	2 0 61 <1 957 1086 1005	2 0 57 <1 939 1038 1005	2 0 61 <1 879 1107 1003
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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 61 <1 957 1086 1005 1263	2 0 57 <1 939 1038 1005 1251	2 0 61 <1 879 1107 1003 1189
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	0 0 60 0 1010 1070 1150 1270 2060	2 0 61 <1 957 1086 1005 1263 2870	2 0 57 <1 939 1038 1005 1251 2660	2 0 61 <1 879 1107 1003 1189 3057
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 61 <1 957 1086 1005 1263 2870 current	2 0 57 <1 939 1038 1005 1251 2660 history1	2 0 61 <1 879 1107 1003 1189 3057 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	2 0 61 <1 957 1086 1005 1263 2870 current 6	2 0 57 <1 939 1038 1005 1251 2660 history1 4	2 0 61 <1 879 1107 1003 1189 3057 history2 3
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	2 0 61 <1 957 1086 1005 1263 2870 current 6 3	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 0 61 <1 957 1086 1005 1263 2870 current 6 3 0	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	2 0 61 <1 957 1086 1005 1263 2870 current 6 3 0 0	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1 <u>history1</u> 0.4	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2 history2 0.2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	2 0 61 <1 957 1086 1005 1263 2870 current 6 3 0 current 0.6	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1 history1	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 220 imit/base >4 >20 >4 >20	2 0 61 <1 957 1086 1005 1263 2870 current 6 3 0 current 0.6 9.8 22.0	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1 4 3 <1 0.4 8.6 20.1	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2 <u>history2</u> 0.2 7.4 19.7
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	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	2 0 61 <1 957 1086 1005 1263 2870 Current 6 3 0 Current 0.6 9.8 22.0 Current	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1 4 3 <1 0.4 8.6 20.1 history1	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2 history2 0.2 7.4 19.7 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 25 20 220 imit/base >4 >20 >4 >20	2 0 61 <1 957 1086 1005 1263 2870 current 6 3 0 current 0.6 9.8 22.0	2 0 57 <1 939 1038 1005 1251 2660 history1 4 3 <1 4 3 <1 0.4 8.6 20.1	2 0 61 <1 879 1107 1003 1189 3057 history2 3 0 2 history2 0.2 7.4 19.7

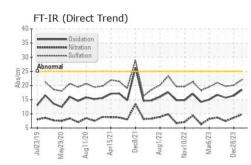


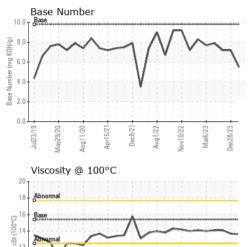
10

8. Jul23/19

ug11/20 Apr15/21 lec8/71 ug1/22 lov10/22

OIL ANALYSIS REPORT





Mar6/23

Jec28/23

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	13.6	13.7	14.1

GRAPHS

Non-ferrous Metals

10

bpm

2

19

18 17

16 B

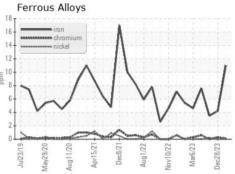
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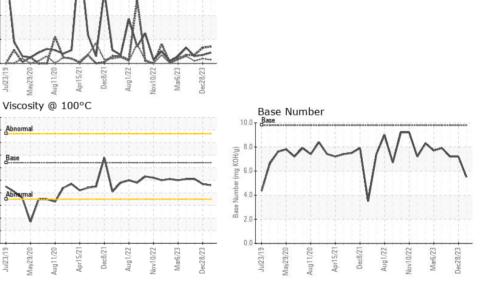
9

Jul23/19

Mav29/20

Jul23





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0111026 Received : 08 Apr 2024 3618 US Highway 421 N Lab Number : 06141088 Tested : 09 Apr 2024 Wilmington, NC US 28401 Unique Number : 10965896 Diagnosed : 09 Apr 2024 - Wes Davis Test Package : FLEET Contact: Eric Wood Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. eric.wood@gflenv.com T: (717)723-1956 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F: (910)762-6880

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

Submitted By: Eric Wood

Page 2 of 2



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