

OIL ANALYSIS REPORT

Sample Rating Trend



Area (YA169068) 712001 Component Diesel Engine Fluid PETRO CANADA D

712001 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- QTS)

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

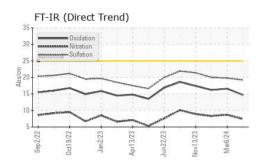
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

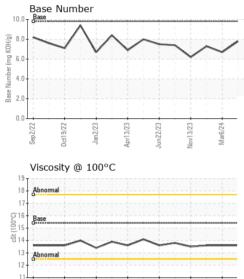
Sample Number		Client Info		GFL0111033	GFL0111071	GFL0098510
Sample Date		Client Info		08 May 2024	06 Mar 2024	22 Nov 2023
Machine Age	hrs	Client Info		5731	5645	4900
Oil Age	hrs	Client Info		86	924	179
Oil Changed	1110	Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	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	8	8	13
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	2	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	2	4
Lead	ppm	ASTM D5185m	>40	<1	<1	1
Copper	ppm	ASTM D5185m	>330	6	2	49
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base		hintow of	history
ADDITIVES		method	iimii/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	nistory i 1	3
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0	0	1	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	1 0	3 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 64	1 0 57	3 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 64 <1 920 1099	1 0 57 <1	3 0 60 <1 953 1126
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	0 0 64 <1 920 1099 1066	1 0 57 <1 941 1012 1027	3 0 60 <1 953 1126 1077
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	0 0 64 <1 920 1099	1 0 57 <1 941 1012	3 0 60 <1 953 1126 1077 1280
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	0 0 64 <1 920 1099 1066	1 0 57 <1 941 1012 1027	3 0 60 <1 953 1126 1077
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	0 0 64 <1 920 1099 1066 1226	1 0 57 <1 941 1012 1027 1265	3 0 60 <1 953 1126 1077 1280
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	0 0 64 <1 920 1099 1066 1226 3119	1 0 57 <1 941 1012 1027 1265 2835	3 0 60 <1 953 1126 1077 1280 2833
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 0 1010 1070 1150 1270 2060	0 0 64 <1 920 1099 1066 1226 3119 current	1 0 57 <1 941 1012 1027 1265 2835 history1	3 0 60 <1 953 1126 1077 1280 2833 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	0 0 64 <1 920 1099 1066 1226 3119 current 4	1 0 57 <1 941 1012 1027 1265 2835 history1 4	3 0 60 <1 953 1126 1077 1280 2833 history2 6
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	0 0 64 <1 920 1099 1066 1226 3119 current 4 54	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4
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	0 0 64 <1 920 1099 1066 1226 3119 current 4 54 3	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15
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 2060 225 >25	0 0 64 <1 920 1099 1066 1226 3119 current 4 54 3 3	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3 3 history1	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 0 64 <1 920 1099 1066 1226 3119 <i>current</i> 4 54 3 <i>current</i> 0.5	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3 <u>history1</u> 0.4	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15 history2 0.4
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 imit/base >20	0 0 64 <1 920 1099 1066 1226 3119 <i>current</i> 4 54 3 <i>current</i> 0.5 7.4	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3 <u>history1</u> 0.4 8.7	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15 history2 0.4 8.3
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 20 225 220 220 20 20 20 20 20 20 20 20 20 20 2	0 0 64 <1 920 1099 1066 1226 3119 <i>current</i> 4 54 3 <i>current</i> 0.5 7.4 19.2 <i>current</i>	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3 history1 0.4 8.7 19.8 history1	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15 history2 0.4 8.3 20.0 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 20 225 20 imit/base >4 >20 20	0 0 64 <1 920 1099 1066 1226 3119 <i>current</i> 4 54 3 <i>current</i> 0.5 7.4 19.2	1 0 57 <1 941 1012 1027 1265 2835 history1 4 4 3 <u>history1</u> 0.4 8.7 19.8	3 0 60 <1 953 1126 1077 1280 2833 history2 6 4 15 history2 0.4 8.3 20.0



Sep2/22

OIL ANALYSIS REPORT





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Nov13/23

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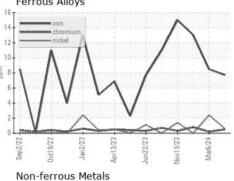
Sep2/22

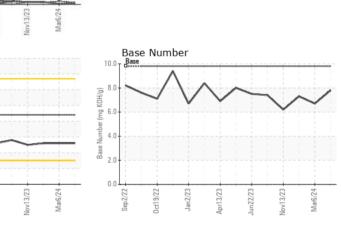
Oct19/22

in22/23

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	13.6	13.6
GRAPHS						

Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 006 - Wilmington Sample No. : GFL0111033 Received : 09 May 2024 3618 US Highway 421 N Lab Number : 06174933 Tested : 10 May 2024 Wilmington, NC US 28401 Unique Number : 11020986 Diagnosed : 10 May 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

Apr13/23

un22/23

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

FC/Cue

Jan2/23

Viscosity @ 100°C

nr13/7

Report Id: GFL006 [WUSCAR] 06174933 (Generated: 05/10/2024 17:08:48) Rev: 1

Submitted By: Eric Wood

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