

OIL ANALYSIS REPORT

Sample Rating Trend



725048-101260

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.

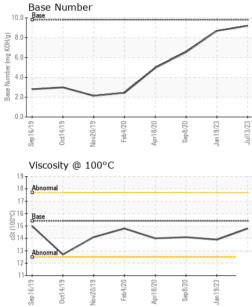
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0087731	GFL0062966	GFLI-538118
Sample Date		Client Info		13 Jul 2023	19 Jan 2023	08 Sep 2020
Machine Age	hrs	Client Info		12142	0	7457
Oil Age	hrs	Client Info		0	0	446
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	0.5
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	17	27	16
Chromium	ppm	ASTM D5185m	>5	<1	1	0
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	5	9	11
Lead	ppm	ASTM D5185m	>30	0	1	0
Copper	ppm	ASTM D5185m	>150	3	1	1
Tin	ppm	ASTM D5185m	>5	0	<1	1
Antimony	ppm	ASTM D5185m				1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 3	history1 2	history2 310
	ppm ppm	ASTM D5185m			· · · · · ·	
Boron		ASTM D5185m	0	3	2	310
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	3 <1	2 4	310 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 <1 65	2 4 62	310 0 144
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 <1 65 <1	2 4 62 <1	310 0 144 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 <1 65 <1 1033	2 4 62 <1 919	310 0 144 0 689
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	3 <1 65 <1 1033 1169	2 4 62 <1 919 1050	310 0 144 0 689 1675
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	3 <1 65 <1 1033 1169 1121	2 4 62 <1 919 1050 976	310 0 144 0 689 1675 795
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	3 <1 65 <1 1033 1169 1121 1358	2 4 62 <1 919 1050 976 1254	310 0 144 0 689 1675 795
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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	3 <1 65 <1 1033 1169 1121 1358 3844	2 4 62 <1 919 1050 976 1254 3278	310 0 144 0 689 1675 795 939
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	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	3 <1 65 <1 1033 1169 1121 1358 3844 	2 4 62 <1 919 1050 976 1254 3278 	310 0 144 0 689 1675 795 939 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	3 <1 65 <1 1033 1169 1121 1358 3844 Current	2 4 62 <1 919 1050 976 1254 3278 history1	310 0 144 0 689 1675 795 939 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm 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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	3 <1 65 <1 1033 1169 1121 1358 3844 <u>current</u> 4	2 4 62 <1 919 1050 976 1254 3278 history1 6	310 0 144 0 689 1675 795 939 2 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium	ppm ppm 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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >20	3 <1 65 <1 1033 1169 1121 1358 3844 current 4 29 <1	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62	310 0 144 0 689 1675 795 939 2 2 <u>history2</u> 9 101
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >20	3 <1 65 <1 1033 1169 1121 1358 3844 current 4 29 <1	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3	310 0 144 0 689 1675 795 939 2 2 <u>history2</u> 9 101 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3	3 <1 65 <1 1033 1169 1121 1358 3844 current 4 29 <1 current	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3 3 history1	310 0 144 0 689 1675 795 939 2 2 <u>history2</u> 9 101 1 1 <u>history2</u>
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3	3 <1 65 <1 1033 1169 1121 1358 3844 current 4 29 <1 current 0.6	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3 3 history1 0.6	310 0 144 0 689 1675 795 939 2 2 history2 9 101 1 1 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 init/base >20 init/base >20 init/base	3 <1 65 <1 1033 1169 1121 1358 3844 Current 4 29 <1 Current 0.6 7.6 19.4	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3 3 history1 0.6 9.8	310 0 144 0 689 1675 795 939 2 2 <u>history2</u> 9 101 1 1 <u>history2</u> 0.3 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >20 imit/base >3 >20 >3 >20	3 <1 65 <1 1033 1169 1121 1358 3844 Current 4 29 <1 Current 0.6 7.6 19.4	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3 history1 0.6 9.8 19.8	310 0 144 0 689 1675 795 939 2 <u>history2</u> 9 101 1 <u>history2</u> 0.3 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium 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 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	3 <1 65 <1 1033 1169 1121 1358 3844 Current 4 29 <1 Current 0.6 7.6 19.4 Current	2 4 62 <1 919 1050 976 1254 3278 history1 6 6 62 3 history1 0.6 9.8 19.8 19.8 history1	310 0 144 0 689 1675 795 939 2 2 history2 9 101 1 1 history2 0.3 8 history2

Contact/Location: acct in GFL836 - Robert Hart - GFL837



OIL ANALYSIS REPORT

VISUAL



Certificate L2367	Laboratory Sample No. Lab Number Unique Number Test Package	: GFL0087731 : <mark>05904797</mark> : 10566153	501 Madison Ave., Cary, NC 27513 GF Received : 21 Jul 2023 Diagnosed : 24 Jul 2023 Diagnostician : Wes Davis ice at 1-800-237-1369.			3 GFL Env	L Environmental - 837 - Harrison T 22820 S State Route 29 Harrisonville, MC US 6470 Contact: Robert Har		
		Uiscosity @ 100°C	Feb4/20 Feb4/20 Feb4/20 Apr18/20 Apr18/	Sep8/20 - Sep8/2	CZ/ELIPP CZ/ELIPP CZ/ELIPP CZ/ELIPP CZ/ELIPP CZ/ELIPP		Feb4/20	Sep 6/20 Jan 19/23	
4	,	20 Ed 15 10 5 6 6 1/91 Copper Non-ferrous Meta	Feb4/20 Apr18/20	Sep8/20	Jult3/23				
Fab4/20 +	Sep8.20 +	Visc @ 100°C GRAPHS Ferrous Alloys	cSt	ASTM D445		14.8	13.9	14.1	
2		Emulsified Water Free Water FLUID PROPE	scalar scalar	*Visual *Visual method	>0.2 limit/base	NEG NEG current	NEG NEG history1	 history2	
Feb4/20 - Apr18/20 -	Sep8/20 - Jan19/23 - Jul13/23 -	Appearance Odor	scalar scalar	*Visual *Visual	NORML NORML	NORML NORML	NORML NORML		
		Silt Debris Sand/Dirt	scalar scalar scalar	*Visual *Visual *Visual	NONE NONE	NONE NONE NONE	NONE NONE NONE		
		Precipitate	scalar	*Visual	NONE	NONE	NONE		

Contact/Location: acct in GFL836 - Robert Hart - GFL837