

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 812022 Component

Fluid

Diesel Engine

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

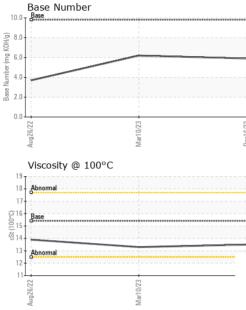
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085534	GFL0060402	GFL0044806
Sample Date		Client Info		16 Dec 2023	10 Mar 2023	26 Aug 2022
Machine Age	hrs	Client Info		3455	2441	1593
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
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	28	29	83
Chromium	ppm	ASTM D5185m	>20	<1	1	3
Nickel	ppm	ASTM D5185m	>5	7	6	8
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	2	1	4
Lead	ppm	ASTM D5185m	>40	0	<1	2
Copper	ppm	ASTM D5185m	>330	17	20	48
Tin	ppm	ASTM D5185m	>15	<1	1	3
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	pp	No I III Do Toolli		U	0	
ADDITIVES	pp	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base		-	
		method		current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 4	history1 4	history2 13
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 4 0	history1 4 0	history2 13 <1
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 4 0 58	history1 4 0 51	history2 13 <1 83
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 4 0 58 <1	history1 4 0 51 <1	history2 13 <1 83 2
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 4 0 58 <1 836	history1 4 0 51 <1 667	history2 13 <1 83 2 156
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	0 0 60 0 1010 1070	Current 4 0 58 <1 836 1141	history1 4 0 51 <1 667 1157	history2 13 <1 83 2 156 2068
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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 4 0 58 <1 836 1141 888	history1 4 0 51 <1 667 1157 829	history2 13 <1 83 2 156 2068 975
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	current 4 0 58 <1 836 1141 888 1165	history1 4 0 51 <1 667 1157 829 1077	history2 13 <1 83 2 156 2068 975 1265
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	Current 4 0 58 <1 836 1141 888 1165 2528	history1 4 0 51 <1 667 1157 829 1077 2054	history2 13 <1 83 2 156 2068 975 1265 2698
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	current 4 0 58 <1 836 1141 888 1165 2528 current	history1 4 0 51 <1 667 1157 829 1077 2054 history1	history2 13 <1 83 2 156 2068 975 1265 2698 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 1010 1070 1150 1270 2060	current 4 0 58 <1 836 1141 888 1165 2528 current 5	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14
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 limit/base	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4
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 limit/base >25 >20	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4 2	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1 1	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4 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	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4 2 current	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1 1 history1	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4 2 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	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4 2 current 0.7	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1 1 0 0.8	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4 2 history2 1.3
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 ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 225 220 220 1imit/base >22 20	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4 2 current 0.7 8.8	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1 1 0 0.8 9.6	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4 2 history2 1.3 13.6
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 imit/base >25 imit/base >4 >20	current 4 0 58 <1 836 1141 888 1165 2528 current 5 4 2 current 0.7 8.8 20.9	history1 4 0 51 <1 667 1157 829 1077 2054 history1 8 1 0.8 9.6 21.1	history2 13 <1 83 2 156 2068 975 1265 2698 history2 14 4 2 history2 1.3 13.6 29.5



OIL ANALYSIS REPORT

VISUAL



ING LABORATORY	Laboratory Sample No. Lab Number Unique Number Test Package		A - 501 Madiso Recieved Diagnose Diagnostio	: 27 [d : 28 [ry, NC 27513 Dec 2023 Dec 2023 S Davis	GFL En	vironmental - (Contact: DELE	2045 LEE HW Cloverdale, V US 2407
		Aug26/22	Mar10/23		0.0 Dec16/23	Aug26/22	Mar10/23	
		4 13 Abnormal			aq M 4.0 888 2.0			
		17- 16- Base 15- 15- 15- 14- 14- 17- 17- 17- 17- 17- 16- 15- 15- 16- 15- 16- 15- 16- 15- 16- 15- 15- 15- 15- 15- 15- 15- 15			(0,000) (0,00) (0,000)			
		19 18 Abnormal			10.0	Base Number		
		Viscosity @ 10	Mar10/23		Dec16/23			
		10		2				
		<u>Б</u> 20						
		40 - tin						
		Non-ferrous M	letals					
		Aug26/22 0	Mar10/23		Dec16/23			
		30						
		50 40						
Mar10/23		80 70 60	ļ					
		GRAPHS Ferrous Alloys						
		Visc @ 100°C	cSt	ASTM D445	15.4	13.5	13.3	13.9
		FLUID PRC		method	limit/base	current	history1	history2
		Emulsified Wate Free Water		*Visual *Visual	>0.2	NEG NEG	NEG NEG	NEG NEG
Mar10/23	Dec16/23	Appearance Odor		*Visual	NORML	NORML NORML	NORML	NORML
23	23	Sand/Dirt		*Visual *Visual	NONE NORML	NONE	NONE NORML	NONE NORML
		Debris		*Visual	NONE	NONE	NONE	NONE
		Silt	scalar	*Visual	NONE	NONE	NONE	NONE
		Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE



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Contact/Location: DELBERT BEASLEY - GFL660R