

OIL ANALYSIS REPORT

Sample Rating Trend



^{Machine Id} 425138 - SW4515

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 INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085501	GFL0085417	GFL0065800
Sample Date		Client Info		03 Aug 2023	31 May 2023	17 Feb 2023
Machine Age	mls	Client Info		329182	325338	315859
Oil Age	mls	Client Info		325338	315859	0
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method	20	NEG	NEG	NEG
-	0		limit/booo	ourroat	biotory (1	bistory
WEAR METAL		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	10	25	17
Chromium	ppm		>20	<1	2	0
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	1
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	1	<1	0
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 1	history1 27	history2 0
	ppm ppm					
Boron		ASTM D5185m	0	1	27	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	27 0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 41	27 0 34	0 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 41 <1	27 0 34 <1	0 0 63 <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	1 0 41 <1 24	27 0 34 <1 92	0 0 63 <1 994
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	1 0 41 <1 24 2298	27 0 34 <1 92 2328	0 0 63 <1 994 1198
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	1 0 41 <1 24 2298 1038	27 0 34 <1 92 2328 1013	0 0 63 <1 994 1198 1038
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	1 0 41 <1 24 2298 1038 1231	27 0 34 <1 92 2328 1013 1218	0 0 63 <1 994 1198 1038 1361
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 1010 1070 1150 1270 2060	1 0 41 <1 24 2298 1038 1231 3640	27 0 34 <1 92 2328 1013 1218 3573	0 0 63 <1 994 1198 1038 1361 3706
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	0 0 60 1010 1070 1150 1270 2060	1 0 41 <1 24 2298 1038 1231 3640 current	27 0 34 <1 92 2328 1013 1218 3573 history1	0 0 63 <1 994 1198 1038 1361 3706 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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	0 0 60 1010 1070 1150 1270 2060 imit/base >25	1 0 41 <1 24 2298 1038 1231 3640 current 6	27 0 34 <1 92 2328 1013 1218 3573 history1 8	0 0 63 <1 994 1198 1038 1361 3706 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	1 0 41 <1 24 2298 1038 1231 3640 current 6 <	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 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	1 0 41 <1 24 2298 1038 1231 3640 current 6 <1 2	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25	1 0 41 <1 24 2298 1038 1231 3640 current 6 <1 2 2 current	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2 history1 0.9	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1 history2 0.6
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	1 0 41 <1 24 2298 1038 1231 3640 <i>current</i> 6 <1 2 <i>current</i> 0.5	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2 2 history1	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1 history2
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 limit/base >25 >20 limit/base >3 >20	1 0 41 <1 24 2298 1038 1231 3640 <i>current</i> 6 <1 2 <i>current</i> 0.5 9.5	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2 history1 0.9 13.9	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1 history2 0.6 10.8
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 D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 1imit/base >3 220 330	1 0 41 <1 24 2298 1038 1231 3640 <i>current</i> 6 <1 2 <i>current</i> 0.5 9.5 19.6	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2 history1 0.9 13.9 25.1 history1	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1 history2 0.6 10.8 22.1 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 <i>limit/base</i> >25 <i>limit/base</i> >3 >20 <i>limit/base</i> >3 20	1 0 41 <1 24 2298 1038 1231 3640 <u>current</u> 6 <1 2 <u>current</u> 0.5 9.5 19.6	27 0 34 <1 92 2328 1013 1218 3573 history1 8 1 2 <u>history1</u> 0.9 13.9 25.1	0 0 63 <1 994 1198 1038 1361 3706 history2 3 0 <1 history2 0.6 10.8 22.1

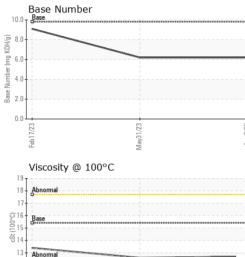


Abnormal 12 11

Feb17/23

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OIL ANALYSIS REPORT



		VISUAL White Metal	scalar	method *Visual	limit/base	current NONE	history1 NONE	history2 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	
1/23	Aug3/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
May31/23	Aug	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
С		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
C		Free Water	scalar	*Visual		NEG	NEG	NEG	
		FLUID PROP	ERTIES	method	limit/base	current	history1	history2	
		Visc @ 100°C	cSt	ASTM D445		12.7	12.6	13.4	
		GRAPHS							
		Ferrous Alloys	_						
23		25 iron	\frown						
May31/23		20 - nickel							
		_ 15							
		Ē. 10-							
		10							
		5-							
			Interstanting and the second						
		- Feb17/23	1/23 -		Aug3/23 -				
		Feb1	May31/23		Aug				
		Non-ferrous Met	als						
		10 copper							
		8 -							
		un							
		6							
		4 4							
		2 -	1						
					C.O.				
		eb 17/23	lay31/23		Aug3/23				
			2		Aı				
		Viscosity @ 100	°C			Base Number			
		18 - Abnormal			10.0	Base			
		17-			([₿] / ^{8.0}				
		C ¹⁶ Base			ġ ġ 6.0				
		Double 16 Base Base 11 S 14			0.6 Base Number (mg KOH/g)				
		⁶³ 14			4.0				
		13 Abnormal			2.0	-			
		12 -							
		114	23		0.0	53	23	23	
		Feb 17/23	May31/23		Aug3/23	Feb 17/23	May31/23	Aug3/23	
		LL.	N		-			4	
		····							
4	Laboratory					GFL Envir		ugar Land Hauling	
	Sample No.	: WearCheck USA : GFL0085501 : 05918319	Received	d : 08 /	Aug 2023	GFL Envir	16011 We	st Belfort Street	
	Sample No. Lab Number Unique Number	: GFL0085501 : 05918319 r : 10590233		d : 08 / ed : 09 /		GFL Envir	16011 We		
Certificate L2367	Sample No. Lab Number Unique Number Test Package	: GFL0085501 : 05918319 r : 10590233	Received Diagnos Diagnos	d : 08 / ed : 09 / tician : Sea	Aug 2023 Aug 2023 In Felton	GFL Envir	16011 We t Conta	st Belfort Street Sugar Land, TX	

Submitted By: TECHNICIAN ACCOUNT