

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

525130 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		GFL0114160	GFL0108111	GFL0108166	
Sample Date		Client Info		26 Mar 2024	31 Jan 2024	11 Jan 2024	
Machine Age	hrs	Client Info		949	816	628	
Oil Age	hrs	Client Info		133	0	0	
Oil Changed		Client Info		Not Changd	Changed	Not Changd	
Sample Status				NORMAL	NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>5	<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	>80	5	4	6	
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	0	0	
Titanium	ppm	ASTM D5185m		0	0	0	
Silver	ppm	ASTM D5185m	>3	0	0	0	
Aluminum	ppm	ASTM D5185m	>30	2	2	1	
Lead	ppm	ASTM D5185m	>30	1	0	<1	
Copper	ppm	ASTM D5185m	>150	16	18	16	
Tin	ppm	ASTM D5185m	>5	0	<1	<1	
Vanadium	ppm	ASTM D5185m		<1	0	<1	
Cadmium	ppm	ASTM D5185m		0	0	0	
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm		limit/base 0	current 5	history1 6	history2 6	
	ppm ppm	ASTM D5185m					
Boron		ASTM D5185m	0	5	6	6	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 0	6 0	6 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 38	6 0 34	6 0 36	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 38 <1	6 0 34 <1	6 0 36 <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	5 0 38 <1 243	6 0 34 <1 109	6 0 36 <1 133	
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	5 0 38 <1 243 2658	6 0 34 <1 109 2490	6 0 36 <1 133 2472	
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	5 0 38 <1 243 2658 983	6 0 34 <1 109 2490 1026	6 0 36 <1 133 2472 1071	
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	5 0 38 <1 243 2658 983 1348	6 0 34 <1 109 2490 1026 1186	6 0 36 <1 133 2472 1071 1244	
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	5 0 38 <1 243 2658 983 1348 3731	6 0 34 <1 109 2490 1026 1186 2884	6 0 36 <1 133 2472 1071 1244 3223	
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	5 0 38 <1 243 2658 983 1348 3731 current	6 0 34 <1 109 2490 1026 1186 2884	6 0 36 <1 133 2472 1071 1244 3223	
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	5 0 38 <1 243 2658 983 1348 3731 current 9	6 0 34 <1 109 2490 1026 1186 2884 history1 7	6 0 36 <1 133 2472 1071 1244 3223 history2 7	
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >20	5 0 38 <1 243 2658 983 1348 3731 current 9 3	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3	6 0 36 <1 133 2472 1071 1244 3223 history2 7 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 0 1010 1070 1150 1270 2060 limit/base >20	5 0 38 <1 243 2658 983 1348 3731 <i>current</i> 9 3 1	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 220 20 20 20 20	5 0 38 <1 243 2658 983 1348 3731 current 9 3 1 1 current	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0 0	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 1 1 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >20 <i>limit/base</i> >20	5 0 38 <1 243 2658 983 1348 3731 current 9 3 1 1 current 0.2	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0 history1 0.1	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 1 history2 0.1	
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 <i>limit/base</i> >20 <i>limit/base</i> >20	5 0 38 <1 243 2658 983 1348 3731 <i>current</i> 9 3 1 <i>current</i> 0.2 7.9	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0 history1 0.1 7.4	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 1 1 history2 0.1 7.0	
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 imit/base >20 imit/base >3 >20 >3	5 0 38 <1 243 2658 983 1348 3731 <u>current</u> 9 3 1 1 <u>current</u> 0.2 7.9 19.6	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0 0 history1 0.1 7.4 18.9	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 1 1 <u>history2</u> 0.1 7.0 17.3	
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	5 0 38 <1 243 2658 983 1348 3731 current 9 3 1 current 0.2 7.9 19.6 current	6 0 34 <1 109 2490 1026 1186 2884 history1 7 3 0 history1 0.1 7.4 18.9 history1	6 0 36 <1 133 2472 1071 1244 3223 history2 7 4 1 1 history2 0.1 7.0 17.3 history2	



OIL ANALYSIS REPORT

35 -	FT-IR (Direct Tre	end)		VISUAL		method	limit/base	current	history1	history2
30-	Oxidation			White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
25 -	Abrionnal Sulfation			Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Abs/cm				Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
99 15-	1 7 7 × 2 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7			Silt	scalar	*Visual	NONE	NONE	NONE	NONE
10				Debris	scalar	*Visual	NONE	NONE	NONE	NONE
E				Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
5-	1/24	1/24 -	6/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
	Jan 11/24	Jan 31/24	Mar26/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Base Number			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Base			Free Water	scalar	*Visual		NEG	NEG	NEG
(B/HOX Bw) 6.0 -				FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
g 6.0-				Visc @ 100°C	cSt	ASTM D445	15.4	14.5	14.6	14.3
4.0 - Mumper 8 - 0.0				GRAPHS						
8 2.0-				Ferrous Alloys						
0.0	Jan 11/24	Jan31/24 +	A.C. 2C	10 8 8						
	Viscosity @ 100°	°C		und G						
19 18	Abnormal			ā 4						
17-	d									
(2016- 0010- 15-	Base			2						
은 15- 중 14-					4					
13-	Abnormal			lan 11/24	Jan31/24		Mar26/24			
12				->	,		Ma			
111	24	- 24 -	r C	Non-ferrous Meta	als					
	Jan 11/24	Jan 31/24	a crop	16 - copper						
		,	4	14						
				12-						
				E ¹⁰						
				6						
				4						
				2		and the test of the test of the	And And Street			
				1/24	Jan 31/24		ar26/24 -			
				Jan 1	Jan3		Mar2			
				Viscosity @ 100°	°C			Base Numb	er	
				19 18 - Abnormal			10.	Base		
				18 - Abnormal	1		- 8.	0		
							6/HOX			
				60 00 015 05 14			.0 .9 .9 .9 .9 .9 .0 .4 .0 .4 .0 .2	0-		
				ts 14		_		0		
				13 Abnormal			Sase N			
				12			° 2.	0-		
				11						
				Jan 11/24	Jan31/24		Mar26/24	Jan 11/24	Jan 31/24	Mar26/24
				ل م	la		W	La	La	Ma
		* - Denotes tes	Sample No. Lab Number Unique Number Test Package is sample report, of st methods that a	: 10964012	Recei Teste Diagr vice at 1-8 17025 scc	ived : 04 id : 05 nosed : 06 800-237-1369 ope of accred	4 Apr 2024 5 Apr 2024 Apr 2024 - Dor 9. <i>litation.</i>	n Baldridge	Ha Contact: JC johnny.pere	7 - Harrison TS State Route 291 arrisonville, MO US 64701 DHNNY PEREZ ez@gflenv.com T: F:
Doport I		B1 06139204 (Ger	nerated: 04/06/2024	14-17-10) Rev: 1					Submitted By: JEF	

Submitted By: JEREMY BROWN