

OIL ANALYSIS REPORT



Machine Id

833002

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		GFL0123391		
Sample Date		Client Info		20 Jun 2024		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	10		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	2		
Lead	ppm	ASTM D5185m	>40	<1		
Copper	ppm	ASTM D5185m	>330	2		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 7	history1	history2
	ppm ppm					
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0	7		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	7 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	7 0 49 <1 576		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	7 0 49 <1 576 1651		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	7 0 49 <1 576 1651 760		
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	7 0 49 <1 576 1651 760 1025	 	
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	0 0 60 0 1010 1070 1150	7 0 49 <1 576 1651 760	 	
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	7 0 49 <1 576 1651 760 1025	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060	7 0 49 <1 576 1651 760 1025 2899 current 4		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 0 1010 1070 1150 1270 2060 limit/base	7 0 49 <1 576 1651 760 1025 2899 current 4 6	 history1	 history2
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 1010 1070 1150 1270 2060	7 0 49 <1 576 1651 760 1025 2899 current 4	 history1	 history2
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 0 1010 1070 1150 1270 2060 limit/base	7 0 49 <1 576 1651 760 1025 2899 current 4 6	 history1	 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	7 0 49 <1 576 1651 760 1025 2899 current 4 6 2 2 2 0	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1imit/base >22 20	7 0 49 <1 576 1651 760 1025 2899 <i>current</i> 4 6 2 2 <i>current</i> 0 10.9	 history1 history1	 history2 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	7 0 49 <1 576 1651 760 1025 2899 current 4 6 2 2 2 0	 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 225 220 220 1imit/base >22 20	7 0 49 <1 576 1651 760 1025 2899 <i>current</i> 4 6 2 2 <i>current</i> 0 10.9	 history1 history1 history1	 history2 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 20 320 33 20 20 20	7 0 49 <1 576 1651 760 1025 2899 <u>current</u> 4 6 2 2 <u>current</u> 0 10.9 20.7	 history1 history1 history1	 history2 history2 history2



OIL ANALYSIS REPORT

FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1	history2	
Oxidation	White Metal	scalar	*Visual	NONE	NONE			
Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE			
Abnomal	Precipitate	scalar	*Visual	NONE	NONE			
ä ₂₀ -	Silt	scalar	*Visual	NONE	NONE			
15 -	Debris	scalar	*Visual	NONE	NONE			
10	Sand/Dirt	scalar	*Visual	NONE	NONE			
)/24 +	Appearance	scalar	*Visual	NORML	NORML			
Jun20/24	Odor	scalar	*Visual	NORML	NORML			
	Emulsified Water	scalar	*Visual	>0.2	NEG			
Base Number	Free Water	scalar	*Visual		NEG			
을 8.0-	FLUID PROPE		method	limit/base	current	history1	history2	
(0, 8, 0 6, 0 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	Visc @ 100°C	cSt	ASTM D445		14.6			
90 4.0	GRAPHS							
8 2.0 -	Ferrous Alloys							
0.0	10 8 - iron nickel							
Viscosity @ 100°C	6							
19 18 Abnormal	E. 4-							
17	2							
© 16 Base		*****	*****	*****				
G 16 Base 15 3 14	0		*******	24				
13 - Abnormal	Jun 20/24			Jun20/24				
12	⊰ Non-ferrous Meta			JL				
124	¹⁰ T							
Jun20/24	copper							
	8 - tin							
	6							
	u dd							
	4							
	2-							
	un20/24			un20/24 -				
	Juni							
	Viscosity @ 100°	С			Base Number			
	¹⁹	10.0						
	18 - Abnormal							
	17-			(B/HO				
	016 Base 115 314			6.0 (b) HOX (b) (b) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c				
	ts 14			an per				
	10			N.U N See Nr				
	13 Abnormal			⁶⁶ 2.0 ·				
	11			0.0-				
	Jun20/24			Jun20/24	Jun20/24 -		Jun20/24 .	
	Jun			Jun	Jun		Junî	
Laboratory Sample No. Lab Number Unique Number Certificate L2367 To discuss this sample report * - Denotes test methods that	: 11101534 : FLEET ; contact Customer Serv are outside of the ISO	Recei Teste Diagn vice at 1-8 17025 sco	ved : 28 d : 01 iosed : 01 00-237-1368 pe of accred	3 Jun 2024 1 Jul 2024 Jul 2024 - Don B 9. Jitation.	Baldridge	Contact: DON dcrave	Galloway Road Bolivia, NC US 28422 ALD CRAVEN n@gflenv.com T:	
Statements of conformity to s		on the sim	ipie accepta	nce decision i	ule (JCGM 106	:2012) F:	(910)253-4179	

Report Id: GFL007 [WUSCAR] 06223337 (Generated: 07/01/2024 11:38:29) Rev: 1

Submitted By: DONALD CRAVEN