

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 212023 Component

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.

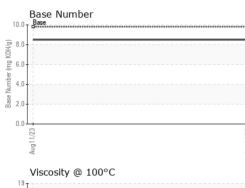
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2	
Sample Number		Client Info		GFL0072536			
Sample Date		Client Info		11 Aug 2023			
Machine Age	hrs	Client Info		3344			
Oil Age	hrs	Client Info		0			
Oil Changed		Client Info		Changed			
Sample Status				NORMAL			
CONTAMINAT	ION	method	limit/base	current	history1	history2	
Fuel		WC Method	>5	<1.0			
Glycol		WC Method		NEG			
WEAR METALS		method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>80	23			
Chromium	ppm	ASTM D5185m	>5	2			
Nickel	ppm	ASTM D5185m	>2	0			
Titanium	ppm	ASTM D5185m		0			
Silver	ppm	ASTM D5185m	>3	0			
Aluminum	ppm	ASTM D5185m	>30	3			
Lead	ppm	ASTM D5185m	>30	0			
Copper	ppm	ASTM D5185m	>150	0			
Tin		ASTM D5185m	>5	0			
Vanadium	ppm	ASTM D5185m	>0				
	ppm			0			
Cadmium	ppm	ASTM D5185m		U			
ADDITIVES		method	limit/base	current	history1	history2	
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 5	history1	history2	
	ppm ppm						
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5			
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 0			
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 56			
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 56 <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 56 <1 880			
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 56 <1 880 1001	 	 	
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 ASTM D5185m	0 0 60 0 1010 1070 1150	5 0 56 <1 880 1001 949	 	 	
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 56 <1 880 1001 949 1171	 		
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 56 <1 880 1001 949 1171 3269			
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	5 0 56 <1 880 1001 949 1171 3269 current	 history1	 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 1010 1070 1150 1270 2060	5 0 56 <1 880 1001 949 1171 3269 current 4	 history1	 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >20	5 0 56 <1 880 1001 949 1171 3269 current 4 1	 history1	 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20	5 0 56 <1 880 1001 949 1171 3269 current 4 1 5	 history1 	 history2 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	5 0 56 <1 880 1001 949 1171 3269 <u>current</u> 4 1 5 <u>current</u> 0.6	 history1 history1	 history2 history2	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	5 0 56 <1 880 1001 949 1171 3269 current 4 1 5 current	 history1 history1	 history2 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 <i>limit/base</i> >20 <i>limit/base</i> >3 >20	5 0 56 <1 880 1001 949 1171 3269 <i>current</i> 4 1 5 <i>current</i> 0.6 8.1	 history1 history1 history1	history2 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 imit/base >20 imit/base >3 >20 >30	5 0 56 <1 880 1001 949 1171 3269 current 4 1 5 current 0.6 8.1 18.9 current	 history1 history1 history1		
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 D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 20 20 20 20 20 20 20 20 20 20 20 20 20	5 0 56 <1 880 1001 949 1171 3269 <u>current</u> 4 1 5 <u>current</u> 0.6 8.1 18.9	history1 history1 history1	history2 history2	



18-Abnormal 17 () 10.00 15. 14. Base

13. Abnormal 12 11 Aug11/23

OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2		
	White Metal	scalar	*Visual	NONE	NONE				
	Yellow Metal	scalar	*Visual	NONE	NONE				
	Precipitate	scalar	*Visual	NONE	NONE				
	Silt	scalar	*Visual	NONE	NONE				
	Debris	scalar	*Visual	NONE	NONE				
	_ Sand/Dirt	scalar	*Visual	NONE	NONE				
		scalar	*Visual	NORML	NORML				
Aug 11/23	Odor	scalar	*Visual	NORML	NORML				
	Emulsified Water	scalar	*Visual	>0.2	NEG				
0°C	Free Water		*Visual	>0.2	NEG				
		scalar							
	FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base	current 13.2	history1	history2		
		COL	ASTIVI D445	15.4	13.2				
	GRAPHS								
	Ferrous Alloys								
	iron			_					
	20 - nickel								
	15								
	E d								
	10-								
	5-								
	0		****						
	Aug 1 1/23			Aug11/23					
	Aug			Bng					
	Non-ferrous Meta	s							
	10 copper								
	8 - Beauting the second								
	6- mdd								
	8 4								
	2 -								
	1/23			ug11/23					
	Aug1			Aug1					
	Viscosity @ 100°C	2			Base Number				
	¹⁹			10.0					
	18 - Abnormal								
	17-			(B)H(+				
	Co ¹⁶ Base			0.0 0.0 8ase Mumber 4.0					
	G16 Base 15 5 14			ber (n					
				4.0	+				
	13 - Abnormal			2.0					
	12								
	11 4.			0.0			23		
	Aug 11/23			Aug11/23	Aug11/23		Aug11/23		
Laboratory	: WearCheck USA - 5		Metro Saginaw						
Sample No.		Received		Sep 2023					
Lab Number Unique Number		Diagnos Diagnost		Sep 2023 s Davis		Saginaw US 48			
Certificate L2367 Test Package		Liagnost		5 Davis		Contact	Jeremy Hines		
To discuss this sample report,		ce at 1-800-237-1369.				jhines@gflenv.com			
* - Denotes test methods that	are outside of the ISO 1	7025 sco	pe of accrea	litation.			(800)684-1277		
Statements of conformity to spe	cifications are based on t	he simple	acceptance of	decision rule (JCGM 106:2012)		F:		