

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

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.

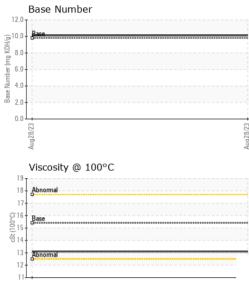
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0085335		
Sample Date		Client Info		28 Aug 2023		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		542		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>2.0	<1.0		
Glycol		WC Method		NEG		
-	0	un otto o d	line it /le e e e		late to must	la i at a muQ
WEAR METAL	5	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	75		
Chromium	ppm	ASTM D5185m	>20	4		
Nickel	ppm	ASTM D5185m	>4	<1		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	<1		
Aluminum	ppm	ASTM D5185m	>20	5		
Lead	ppm	ASTM D5185m	>40	15		
Copper	ppm	ASTM D5185m	>330	21		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 15	history1	history2
	ppm ppm	ASTM D5185m				, i i i i i i i i i i i i i i i i i i i
Boron		ASTM D5185m	0	15		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	15 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	15 0 38		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	15 0 38 3		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	15 0 38 3 633		
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	15 0 38 3 633 1517	 	
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	15 0 38 3 633 1517 785	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	15 0 38 3 633 1517 785 996 2912 current		
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 method	0 0 60 1010 1070 1150 1270 2060	15 0 38 3 633 1517 785 996 2912 current 12		
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	15 0 38 3 633 1517 785 996 2912 current 12 13		
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 method	0 0 60 1010 1070 1150 1270 2060 imit/base >25	15 0 38 3 633 1517 785 996 2912 current 12	 history1 	 history2
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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 imit/base >25	15 0 38 3 633 1517 785 996 2912 current 12 13	 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 TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	15 0 38 3 633 1517 785 996 2912 current 12 13 6	 history1 	 history2
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 2060 225 >25 >20 Imit/base >20	15 0 38 3 633 1517 785 996 2912 current 12 13 6 current	 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Imit/base >20	15 0 38 3 633 1517 785 996 2912 current 12 13 6 current 2.5	 history1 history1 history1	 history2 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> >25 >20 <i>limit/base</i> >3 >20	15 0 38 3 633 1517 785 996 2912 <i>current</i> 12 13 6 <i>current</i> 2.5 12.7	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 20 220 220 20 3 20 20 3 3 20 20 3 3 20 20 20 3 3 20 20 20 20 20 20 20 20 20 20 20 20 20	15 0 38 3 633 1517 785 996 2912 current 12 13 6 current 2.5 12.7 27.9	 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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >3 >20 30 imit/base	15 0 38 3 633 1517 785 996 2912 current 12 13 6 current 2.5 12.7 27.9 current	 history1 history1 history1	history2 history2 history2



Aug28/23

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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		
//23 +	Appearance	scalar	*Visual	NORML	NORML		
Aug28/23	Odor	scalar	*Visual	NORML	NORML		
200	Emulsified Water	scalar	*Visual	>0.2	NEG		
)°C	Free Water	scalar	*Visual		NEG		
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.1		
	GRAPHS						
	Ferrous Alloys						
	⁸⁰						
	70 - iron chromium						
	60 nickel						
	50-						
	튭 40 -						
	30						
	20-						
	10						
	23			1/23			
	Aug28/23			Aug28/23			
	Non-ferrous Metal	s		4			
	25 T						
	20 - copper						
	ensession tin						
	15 -		****	*****			
	۵. 10-						
	5 -						
	0						
	Jug 28/23			Aug 28/23			
	Aug2			Aug2			
	Viscosity @ 100°C				Base Number		
	¹⁹			12.0			
	18 - Abnormal			10.0	Base		-
	17-			(0)HOX 8.0- 6.0- bages Numphers			
	ට 16 0 15 දී 14			J Bu			
	ts 14			a 6.0			
	12			N 4.0			
	13 Abnormal			2.0-			
	11			0.0-			
	Aug28/23			Aug28/23	Aug28/23		Aug28/23
	Augi			Aug2	Augi		Aug2
Certificate L2367	: 05940100 I : 10630712 I : FLEET	Received Diagnose Diagnost	d : 31 / ed : 05 9 tician : Sea	Aug 2023 Sep 2023 In Felton	GFL Enviro	Conta	N. State Rd 29 Chillicothe, IL US 61523 act: Bryan Link
To discuss this sample report, * - Denotes test methods that a						חווט	k@gflenv.com T:
Statements of conformity to spec					ICGM 106:2012)		F:

Submitted By: Also GFL958,958A, 958B - Bryan Link