

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 714049 Component

Fluid

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

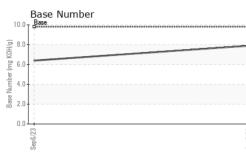
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

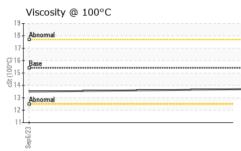
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0091544	GFL0091458	
Sample Date		Client Info		07 Sep 2023	06 Sep 2023	
Machine Age	hrs	Client Info		6879	6513	
Oil Age	hrs	Client Info		600	600	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	14	30	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>2	5	<1	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m	>2	۰ <1	<1	
Aluminum	ppm		>20	0	1	
Lead		ASTM D5185m	>20	۰ <1	<1	
Copper	ppm ppm		>330	1	11	
Tin		ASTM D5185m	>15	1	<1	
Vanadium	ppm	ASTM D5185m	>10	0	0	
Cadmium	ppm			0	0	
Caumium	ppm	ASTM D5185m		U	0	
						h:
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	current 4	history1 63	nistory2
	ppm ppm		0			
Boron		ASTM D5185m	0	4	63	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	63 3	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 60	63 3 105	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 60 <1	63 3 105 7	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	4 0 60 <1 967	63 3 105 7 756	
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	4 0 60 <1 967 1104	63 3 105 7 756 1290	
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	4 0 60 <1 967 1104 1054	63 3 105 7 756 1290 794	
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	4 0 60 <1 967 1104 1054 1285	63 3 105 7 756 1290 794 939	
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	4 0 60 <1 967 1104 1054 1285 3598	63 3 105 7 756 1290 794 939 3561	
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	4 0 60 <1 967 1104 1054 1285 3598 current	63 3 105 7 756 1290 794 939 3561 history1	
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 method	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	4 0 60 <1 967 1104 1054 1285 3598 current 4	63 3 105 7 756 1290 794 939 3561 history1 16	 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	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	4 0 60 <1 967 1104 1054 1285 3598 current 4 4	63 3 105 7 756 1290 794 939 3561 history1 16 5	 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 0 1010 1070 1150 1270 2060 limit/base >25	4 0 60 <1 967 1104 1054 1285 3598 current 4 4 1	63 3 105 7 756 1290 794 939 3561 history1 16 5 4	 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 limit/base >25 >20 limit/base	4 0 60 <1 967 1104 1054 1285 3598 current 4 4 1 2 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	63 3 105 7 756 1290 794 939 3561 history1 16 5 4 4 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	4 0 60 <1 967 1104 1054 1285 3598 <u>current</u> 4 1 1 <u>current</u> 0.6	63 3 105 7 756 1290 794 939 3561 history1 16 5 4 4 history1 0.4	 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 limit/base >25 >20 limit/base >20	4 0 60 <1 967 1104 1054 1285 3598 <i>current</i> 4 4 1 <i>current</i> 0.6 7.5	63 3 105 7 756 1290 794 939 3561 history1 16 5 4 history1 0.4 10.1	 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 >25 imit/base >6 >20	4 0 60 <1 967 1104 1054 1285 3598 <u>current</u> 4 4 1 1 <u>current</u> 0.6 7.5 19.3	63 3 105 7 756 1290 794 939 3561 history1 16 5 4 4 history1 0.4 10.1 19.6	 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 D7624	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	4 0 60 <1 967 1104 1054 1285 3598 <i>current</i> 4 4 4 1 <i>current</i> 0.6 7.5 19.3 <i>current</i>	63 3 105 7 756 1290 794 939 3561 history1 16 5 4 history1 0.4 10.1 19.6 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Sep7/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	
Sep]	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
°C	Free Water	scalar	*Visual		NEG	NEG	
				11 1. 0			
	FLUID PROPE	RHES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.5	
	GRAPHS						
	Ferrous Alloys						
	³⁰						
	25 - chromium						
	20-						
	톱 15						
	10						
	5-		and the set of the set	Annalasia			

	Sep 6/23			Sep7/23 -			
	Sep			Sep			
	Non-ferrous Metals	s					
	12 copper 1						
	10 - management lead						
	8						
	6						
	4						
	2						
	Sep 6/23			Sep7/23 -			
	Sep			Sep			
	Viscosity @ 100°C				Base Number		
	19			10.0	Base		
	18 - Abnormal						
	17-			(B/HO			
	C 16 Base 15 3 14			0.0 Base Number (mg KOH/g)			
	0E)15			nber			
				4.0	1		
	13 Abnormal			²⁰ 2.0	-		
	12			0.0			
	3/23			.0	3/23		//23 -
	Sep 6/23			Sep 7/23	Sep 6/23		Sep 7/23
Laboratory Sample No.		Received	: 13 9	Sep 2023	GFL En	vironmental - 4	888 Baldwin
Lab Number Unique Number		Diagnose Diagnosti		Sep 2023 athan Hester			Pontiac, MI US 48340
Certificate L2367 Test Package	: FLEET	Liagnost				Contact: Rie	cky Matthews
To discuss this sample report, o	contact Customer Servi					rickymathews	@gflenv.com
* - Denotes test methods that a Statements of conformity to spec					JCGM 106:2012)		586)825-9514 F:
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