

OIL ANALYSIS REPORT

Sample Rating Trend





Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (10 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		GFL0098400	GFL0079526	GFL0076862
Sample Date		Client Info		20 Feb 2024	07 Sep 2023	14 Mar 2023
Machine Age	hrs	Client Info		21413	21304	21197
Oil Age	hrs	Client Info		21413	21304	21197
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>120	2	9	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	3
Lead	ppm	ASTM D5185m	>40	1	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	2	<1
Tin	ppm	ASTM D5185m	>15	0	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
				Ū		0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0			
		method	0	current	history1	history2
Boron	ppm	method ASTM D5185m	0	current 255	history1 357	history2 309
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 255 0	history1 357 0 114 <1	history2 309 0 109 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 255 0 98 <1 777	history1 357 0 114 <1 638	history2 309 0 109 1 628
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	current 255 0 98 <1 777 1403	history1 357 0 114 <1 638 1614	history2 309 0 109 1 628 1512
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current 255 0 98 <1 777 1403 839	history1 357 0 114 <1 638 1614 701	history2 309 0 109 1 628 1512 650
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 255 0 98 <1 777 1403 839 997	history1 357 0 114 <1 638 1614 701 839	history2 309 0 109 1 628 1512 650 839
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 255 0 98 <1 777 1403 839	history1 357 0 114 <1 638 1614 701	history2 309 0 109 1 628 1512 650
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 255 0 98 <1 777 1403 839 997 2633 current	history1 357 0 114 <1 638 1614 701 839 2932 history1	history2 309 0 109 1 628 1512 650 839 2582 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	current 255 0 98 <1 777 1403 839 997 2633 current 5	history1 357 0 114 <1 638 1614 701 839 2932 history1 8	history2 309 0 109 1 628 1512 650 839 2582 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 255 0 98 <1 777 1403 839 997 2633 current 5 4	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 255 0 98 <1 777 1403 839 997 2633 current 5	history1 357 0 114 <1 638 1614 701 839 2932 history1 8	history2 309 0 109 1 628 1512 650 839 2582 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 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 ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current 0.4	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1 0.4	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 1 1 0.6
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 TS ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >20	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current 0.4 5.4	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1 0.4 6.3	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 history2 0.6 6.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i>	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current 0.4	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1 0.4	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 1 1 0.6
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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >20	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current 0.4 5.4	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1 0.4 6.3	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 1 history2 0.6 6.5
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	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 	current 255 0 98 <1 777 1403 839 997 2633 current 5 4 2 current 0.4 5.4 20.7	history1 357 0 114 <1 638 1614 701 839 2932 history1 8 2 4 history1 0.4 6.3 20.6	history2 309 0 109 1 628 1512 650 839 2582 history2 7 1 history2 0.6 6.5 22.8

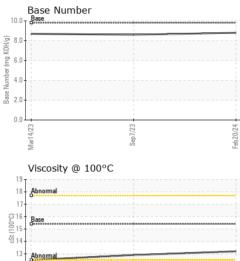
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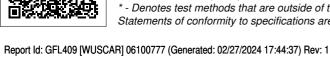
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Mar14/23

OIL ANALYSIS REPORT



			method				history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Sep //23 +	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sep //23 Feb 20/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.2	12.9	12.5
	GRAPHS						
	Ferrous Alloys						
+	10 iron						
77/1dae	chromium						
od loo	on nickel						
	6						
	u dd						
	4						
	2						
	-						
	4/23	Sep 7/23		0/24			
	Mar1	Sep		Feb 20/24			
	– Non-ferrous Metal	c					
	10 _T	.					
	copper						
	8 - Reasons lead						
	6-						
	6- E						
	6- Ed 4-						
	6 4 2						
	2 0		There ago in a fact that the second				
	2 0	2/123	Benned burker and a state of the	⁶⁰²⁴			
	6 2 0 5 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	Sep7/23	Stanney South State Street	Feb20/24			
	Viscosity @ 100°C		28000000 CT COLONG	Feb20/24	Base Number	r	
	Viscosity @ 100°C		38444-49924-44 2844-49924-44	_	Base Number	r	
	Viscosity @ 100°C		28 ann an S 20 ann an S 20 ann an S	10.0-		r	
	4 2 0 Viscosity @ 100°C		2800-000 000-000 000 2800-000 000-000-000 2800-000 000-000-000	10.0-		r 	
	4 2 0 Viscosity @ 100°C			10.0-		r 	
	4 2 0 Viscosity @ 100°C			10.0-		r 	
	Viscosity @ 100°C			10.0-		r 	
	4 2 0 Viscosity @ 100°C			10.0 (0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(r 	
	Viscosity @ 100°C			10.0-		r 	
	Viscosity @ 100°C			10.0 (0, HO) be be 10, HO) be 10, HO 10, HO			
	Viscosity @ 100°C			10.0 (0, HO) be be 10, HO) be 10, HO 10, HO			
	Viscosity @ 100°C			10.0 (0) (0) (0) (0) (0) (0) (0) (0) (0) (0		Sep7/23	
	Viscosity @ 100°C	Sep1/23		-0.01 -0.8 -0.9 -0.9 -0.5 -0.5 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0	Base	Sep1/23	
Laboratory	Viscosity @ 100°C	EZ/Class 1 Madisc		10.0- (BHO) BU 400 9000 9000 9000 9000 9000 9000 9000	Base	EZULARS vironmental - 409	- Wood Island I
Laboratory Sample No.	Viscosity @ 100°C	EZ/Liting 1 Madisco Recei	i ved : 26	10.0- (BHO) BU 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 6.0- 4.0- 6.0- 4.0- 6.	Base	EZULARS vironmental - 409	- Wood Island I State Hwy M2
Laboratory Sample No. Lab Number	Viscosity @ 100°C	EZ/Lites 1 Madisco Recei Teste	ived : 26 d : 27	10.0- (BHO) Bull 30 10.0- (BHO) Bull 30 10.0- (BHO) Bull 30 10.0-	GFL En	EZULARS vironmental - 409	State Hwy M2 Wetmore, M
Laboratory Sample No. Lab Number Unique Number	Viscosity @ 100°C	EZ/Liting 1 Madisco Recei	ived : 26 d : 27	10.0- (BHO) BU 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 4.0- 6.0- 4.0- 6.0- 4.0- 6.	GFL En	vironmental - 409 E10081	- Wood Island I State Hwy M2 Wetmore, N US 4989
Laboratory Sample No. Lab Number	Viscosity @ 100°C	EZ/Leg 1 Madisco Recei Teste Diagr	ived : 26 id : 27 nosed : 27	10.0 ())) ()) ())) ()))	GFL En	vironmental - 409 E10081	- Wood Island I State Hwy M2



Submitted By: TECHNICIAN ACCOUNT