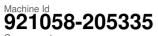


OIL ANALYSIS REPORT

Sample Rating Trend





Component 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.

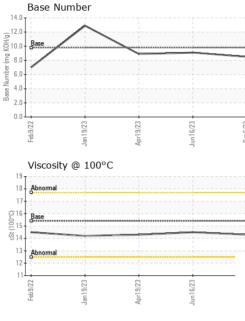
Fluid Condition

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

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093231	GFL0083413	GFL0074163
Sample Date		Client Info		06 Sep 2023	16 Jun 2023	19 Apr 2023
Machine Age	hrs	Client Info		9723	9006	8422
Oil Age	hrs	Client Info		9723	9006	8422
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	8	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m		0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		2	0	3
Lead	ppm	ASTM D5185m	>40	- <1	<1	0
Copper	ppm	ASTM D5185m		<1	<1	16
Tin	ppm	ASTM D5185m		0	<1	0
Vanadium	ppm	ASTM D5185m	210	<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
	1-1-		11 1. 11			history O
ALTITUES		method	limit/base		history1	nistory2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current	history1 0	history2 1
Boron	ppm	ASTM D5185m	0	1	0	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	0 <1	1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 60	0 <1 63	1 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 60 <1	0 <1 63 <1	1 0 63 <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	1 0 60 <1 1006	0 <1 63 <1 988	1 0 63 <1 996
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	1 0 60 <1 1006 1173	0 <1 63 <1 988 1091	1 0 63 <1 996 1103
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	1 0 60 <1 1006 1173 1011	0 <1 63 <1 988 1091 1030	1 0 63 <1 996 1103 1055
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	1 0 60 <1 1006 1173	0 <1 63 <1 988 1091	1 0 63 <1 996 1103
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	1 0 60 <1 1006 1173 1011 1281	0 <1 63 <1 988 1091 1030 1282	1 0 63 <1 996 1103 1055 1330
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	1 0 60 <1 1006 1173 1011 1281 3622	0 <1 63 <1 988 1091 1030 1282 3658	1 0 63 <1 996 1103 1055 1330 3528
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	1 0 60 <1 1006 1173 1011 1281 3622 current 3	0 <1 63 <1 988 1091 1030 1282 3658 history1 4	1 0 63 <1 996 1103 1055 1330 3528 history2 9
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 kimit/base >25	1 0 60 <1 1006 1173 1011 1281 3622 current	0 <1 63 <1 988 1091 1030 1282 3658 history1	1 0 63 <1 996 1103 1055 1330 3528 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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	1 0 60 <1 1006 1173 1011 1281 3622 <u>current</u> 3 9	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ∮ 140
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus 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 imit/base >25	1 0 60 <1 1006 1173 1011 1281 3622 current 3 9 3 2	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ▲ 140 9 9
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 Iinit/base >25	1 0 60 <1 1006 1173 1011 1281 3622 <u>current</u> 3 9 3 <u>current</u> 0.6	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21 4 58 21 history1 0.7	1 0 63 <1 996 1103 1055 1330 3528 history2 9 9 ▲ 140 9 9 history2 0.3
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 1imit/base >20	1 0 60 <1 1006 1173 1011 1281 3622 current 3 9 3 2	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21 kistory1	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ▲ 140 9 9
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	1 0 60 <1 1006 1173 1011 1281 3622 current 3 9 3 Current 0.6 7.4	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21 4 58 21 0.7 7.8	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ▲ 140 9 • history2 0.3 6.3
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 >3 >20	1 0 60 <1 1006 1173 1011 1281 3622 current 3 9 3 Current 0.6 7.4 19.1	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21 6.7 7.8 20.1	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ▲ 140 9 9 history2 0.3 6.3 18.7
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 2060 225 20 220 220 20 20 20 33 20 20 20 20 20 20 20 20 20 20 20 20 20	1 0 60 <1 1006 1173 1011 1281 3622 <i>current</i> 3 9 3 <i>current</i> 0.6 7.4 19.1	0 <1 63 <1 988 1091 1030 1282 3658 history1 4 58 21 4 58 21 0.7 7.8 20.1 history1	1 0 63 <1 996 1103 1055 1330 3528 history2 9 ▲ 140 9 140 9 history2 0.3 6.3 18.7



OIL ANALYSIS REPORT



				method	limit/base	current	history1	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
Apr19/23	Jun 16/23 . Sep 6/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Apr	Jun	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROP	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	14.3	14.5	14.3
		GRAPHS						
		Ferrous Alloys						
5		iron		1				
Apr19/23	Jun 16/23	30 - chromium						
Ap	'nſ	25						
		20						
		5 ²⁰						
		E ²⁰ 15						
		10-						
		5						
		1/22	Apr19/23	//23	//23			
		Feb 9/22 Jan 19/23	pr19	Jun 16/23	Sep6/23			
		ц р	Ap	٦٢	60			
		Non-ferrous Met	als					
		16 T						
		copper		 				
		14 - neasonanne lead	\wedge					
			\wedge					
		14 - neasonanne lead	\wedge					
		12	\wedge					
		12	\wedge					
		12	\wedge					
		12	\bigwedge					
		14	\wedge					
		12	\bigwedge					
		E 8 4 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\bigwedge					
		E 8 4 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	676	623	9/33			
		14	April 9/23	Jun 16/23	Sep 6/23			
		E 8 4 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Auria/22	Jun 16/23 -	Sep0.73	Base Number		
		Line Line Line Line Line Line Line Line		Junt 6/23	cz/gdas	Base Number		
		Line Line Line Line Line Line Line Line		Jun 16/23	14.0			
		Line Line Line Line Line Line Line Line		Jun 16.23	14.0			
		Line Line Line Line Line Line Line Line		Juni6/23	14.0			
		Line Line Line Line Line Line Line Line		Junt 623	14.0			
		Viscosity @ 100°		Juni 6/23	14.0			
		Line Line Line Line Line Line Line Line		Lind Gran	14.(12.(0)HOX 00() 10.(10,0 00() 00() 00() 00() 00() 00() 00() 0	Base		
		Line Line Line Line Line Line Line Line		Junt 623	14.0	Base		
		Viscosity @ 100°	°C	un	14.0 12.0 10.0 10.0 10.0 10.0 10.0 10.0 10	Base		
		Viscosity @ 100°	°C	un	14.0 12.0 10.0 10.0 10.0 10.0 10.0 10.0 10	Base		16/23
		Viscosity @ 100°		Jun 16/23	14.0 12.0 (0)(10.0)(0)(10.0)(Base	Apr1923	Junt 6/23
		Viscosity @ 100°	2C	Junt 6/23 Junt 6/23 Junt	14.0 12.0 (0)AHOX BUL JA BUL J	Feb9/22	Apr19/23	7
	Laboratory	Viscosity @ 100° Abnomal Abnomal 10 0 0 0 0 0 0 0 0 0 0 0 0 0	PC E206µdy - 501 Madia	son Ave., Ca	14.0 12.0 14.0 12.0 14.0 14.0 14.0 12.0 14.0 10.0	Base 2016 Base 526 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 C26 C26 C26 C26 C26 C26 C26	EZ6LUAR ironmental - 865 - E	
	Laboratory Sample No.	Viscosity @ 100°	PC EZGLING	son Ave., Ca	14.0 12.0 10.0	Base 2016 Base 526 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 C26 C26 C26 C26 C26 C26 C26	Apr19/23	East Mount Hauli t Houston Roa
	Laboratory Sample No. Lab Number	Viscosity @ 100° ¹⁹ ¹⁹ ²⁰	2C EZGINA	son Ave., Ca d : 14 3 ed : 16 3	14.0 12.0 14.0 12.0 14.0 14.0 14.0 14.0 14.0 10.0	Base 2016 Base 526 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 C26 C26 C26 C26 C26 C26 C26	EZ6LUAR ironmental - 865 - E	East Mount Hauli n t Houston Roa Houston, T
	Laboratory Sample No. Lab Number Unique Number	Viscosity @ 100° Viscosity @ 100° ¹⁹ ¹⁹ ¹⁰	PC EZGLING	son Ave., Ca d : 14 3 ed : 16 3	14.0 12.0 10.0	Base 2016 Base 526 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 C26 C26 C26 C26 C26 C26 C26	EZ6[Judy ironmental - 865 - E '213 East Moun	East Mount Hauli t Houston Roa Houston, 1 US 770
Cate L2367	Laboratory Sample No. Lab Number Unique Number Test Package	Viscosity @ 100° ¹⁹ ¹⁹ ²⁰	2C EZGLING 501 Madia Received Diagnost	son Ave., Ca d : 14 s ed : 16 s tician : We	14.0 12.0 14.0 12.0 14.0 10.0	Base 2016 Base 526 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 Base C26 C26 C26 C26 C26 C26 C26 C26	EZELUNG ironmental - 865 - E '213 East Moun Conta	East Mount Hauli t Houston Ro Houston, T

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: TECHNICIAN ACCOUNT

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