

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 914020 Component

Fluid

Diesel Engine

PETRO CANADA DURON SHP 15W40 (9 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

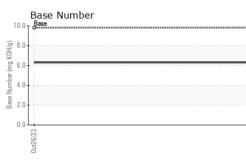
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

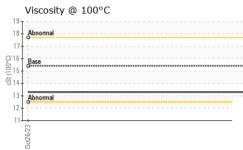
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0097665		
Sample Date		Client Info		26 Oct 2023		
Machine Age	hrs	Client Info		1235		
Oil Age	hrs	Client Info		733		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0		
Glycol		WC Method		NEG		
WEAR METAL	.S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	10		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>5	<1		
Titanium	ppm	ASTM D5185m	>2	0		
Silver	ppm	ASTM D5185m	>2	<1		
Aluminum	ppm	ASTM D5185m	>20	1		
Lead	ppm	ASTM D5185m	>40	0		
Copper	ppm	ASTM D5185m	>330	42		
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 9	history1	history2
	ppm ppm					, in the second s
Boron		ASTM D5185m	0	9		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	9 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	9 0 58		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	9 0 58 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	9 0 58 1 893		
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	9 0 58 1 893 1068	 	
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	9 0 58 1 893 1068 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	9 0 58 1 893 1068 949 1189	 	
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	9 0 58 1 893 1068 949 1189 2703		
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	9 0 58 1 893 1068 949 1189 2703 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	9 0 58 1 893 1068 949 1189 2703 current 6	 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 >25	9 0 58 1 893 1068 949 1189 2703 current 6 3	 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 >25	9 0 58 1 893 1068 949 1189 2703 current 6 3 <1	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus 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 2060 225 >25 >20 imit/base >20	9 0 58 1 893 1068 949 1189 2703 current 6 3 <1 current	 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 225 >25 >20 imit/base >20	9 0 58 1 893 1068 949 1189 2703 <i>current</i> 6 3 <1 <i>current</i> 0.7	 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> >25 >20 <i>limit/base</i> >4 >20	9 0 58 1 893 1068 949 1189 2703 <i>current</i> 6 3 <1 <i>current</i> 0.7 11.2	 history1 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 imit/base >25 imit/base >4 >20 >30	9 0 58 1 893 1068 949 1189 2703 current 6 3 <1 current 0.7 11.2 23.9	 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 D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 2060 225 20 220 20 20 20 20 20 20 20 20 20 20 20	9 0 58 1 893 1068 949 1189 2703 <i>current</i> 6 3 <1 <i>current</i> 0.7 11.2 23.9 <i>current</i>	history1 history1 history1 history1 history1	history2 history2



OIL ANALYSIS REPORT

VISUAL





					current		
	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		
0ct26/23	Appearance	scalar	*Visual	NORML	NORML		
Oct	Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG		
	Free Water	scalar	*Visual		NEG		
	FLUID PROP		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		13.3		
	GRAPHS	001		10.1			
	Ferrous Alloys						
	¹⁰ T						
	iron						
	8 - nickel						
	6						
	u dd						
	4						
	2						
	0++						
	0ct26/23			0ct26/23			
	0						
				00			
	Non-ferrous Met	als		0			
	Non-ferrous Met	als		0			
	45 40 copper	als		0			
	45 T	als		00			
	45 40 35 30	als		20			
	45 40 35 30	als		OC			
	45 40 35 30 <u>E</u> 25 20	als		00			
	45 40 35 30 <u>E</u> 25 20 15	als		00			
	45 40 35 30 E 25 10 45 10 45 10 45 10 45 10 15 10	als		00			
	45 40 35 30 E 25 20 15 10 5	als		00			
	45 40 35 30 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 15 15 15 15 15 15 15 15 15 15	als					
	45 40 35 30 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 15 15 15 15 15 15 15 15 15 15	als					
	45 40 35 30 45 10 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 15 15 15 15 15 15 15 15 15 15			0ct26/23			
	45 40 35 30 15 10 5 0 Viscosity @ 100°				Base Number	r	
	45 40 35 30 52 15 10 5 0 Viscosity @ 100°				Base Number	r	
	45 40 35 30 15 10 5 0 Viscosity @ 100°			0426/23	Base Number	r	
	45 40 35 30 52 15 10 5 0 Viscosity @ 100°			00 00 00 00 00 00 00 00 00 00 00 00 00	Base	r	
	45 40 35 30 525 15 10 5 0 15 15 15 15 15 15 15 15 15 15			00 00 00 00 00 00 00 00 00 00 00 00 00) - Base	r	
	45 40 35 30 525 15 10 5 0 15 15 15 15 15 15 15 15 15 15			00 00 00 00 00 00 00 00 00 00 00 00 00) - Base	r	
	45 40 35 30 525 15 10 5 0 15 15 15 15 15 15 15 15 15 15			00 00 00 00 00 00 00 00 00 00 00 00 00) - Base) -	r	
	45 40 35 30 45 10 5 10 5 10 5 10 5 10 5 10 5 10 5 10 5 10 5 10 5 10 10 10 10 10 10 10 10 10 10			00 00 00 00 00 00 00 00 00 00 00 00 00) - Base) -	r	
	45 40 35 30 45 10 5 0 Viscosity @ 100° 19 18 4boomal 19 18 4boomal 19 10 10 5 0 10 10 10 10 10 10 10 10 10			0.01 0.01 0.01(0) 0.01(0) 0.01(0) 0.01(0)	Base	r	
	45 40 35 30 45 10 5 0 Viscosity @ 1000 19 8 8 8 8 8 10 10 10 10 10 10 10 10 10 10			10.0 936 Mumber (mg KOH(d) 938 Mumber (mg KOH(d) 939 Mumber (mg KOH(d) 930 Mumber (mg KO	Base	r	
	45 40 35 30 45 10 5 0 Viscosity @ 100° 19 18 Abnomal 12 10 5 0 10 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10			EC092200 (D)HOX Building 8.0 (D)HOX Building 8	Base.	r	
	45 40 35 30 45 10 5 0 Viscosity @ 100° 19 18 Abnomal 12 10 5 0 10 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10			EC092200 (D)HOX Building 8.0 (D)HOX Building 8	Base.	r	
	45 40 35 30 45 10 5 10 5 0 Viscosity @ 100° 19 8 8 8 8 8 8 10 10 10 10 10 10 10 10 10 10			10.0 (0,000) (Base	r	
	45 40 35 30 45 10 5 0 Viscosity @ 100° 19 18 Abnomal 12 10 5 0 10 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10			EC092200 (D)HOX Building 8.0 (D)HOX Building 8	Base.	r	
atory	45 40 35 30 45 10 5 0 Viscosity @ 100° 19 18 Abnomal 12 10 5 0 10 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10	C	son Ave., Ca	000529270 000 000 000 000 000 000 000 000 000	- Base 	r nvironmental - 4	
ratory le No.	45 40 35 30 45 10 5 0 Viscosity @ 1000 19 8 8 8 8 8 10 5 0 Viscosity @ 1000 19 8 8 8 8 8 10 10 10 10 10 10 10 10 10 10	C		000529270 000 000 000 000 000 000 000 000 000	- Base 		105 - Arbor Hil 7400 Napier F
	Viscosity @ 1000 Viscosity @ 1000	C 501 Madia	d :16	Сладоро 10.0 10	- Base 		105 - Arbor Hi l 7400 Napier F
le No.	Viscosity @ 1000 Viscosity @ 1000 Viscosity @ 1000 Viscosity @ 1000 Viscosity @ 1000 Viscosity @ 1000 Content of the second of the secon	C 501 Madia Received	d :16 ed :17	EZU92700 10.0 (0)HOX BUI Jaquinky 800 2.0 EXU92700 0.0 EXU92700 EXU92700 EXU92700 EXU92700 EXU92700 EXU92700 EXU9270 EXU97 EXU9 EXU97	- Base 		105 - Arbor Hil
le No. umber	45 40 35 30 45 10 5 0 Viscosity @ 1000 19 8 8 8 10 5 0 Viscosity @ 1000 19 8 8 8 10 5 0 10 5 0 10 5 0 10 10 5 0 10 10 10 10 10 10 10 10 10	C 501 Madia Received Diagnos	d :16 ed :17	Сладоро 10.0 10	- Base 	N	105 - Arbor Hil 7400 Napier F ORTHVILLE, 1

To discuss this sample re * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367

T:

F: