

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **221011** Component **Diesel Engine**

Fluid

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

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.

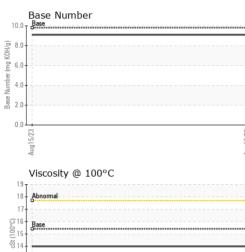
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0060495		
Sample Date		Client Info		15 Aug 2023		
Machine Age	hrs	Client Info		20370		
Oil Age	hrs	Client Info		128		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	13		
Chromium	ppm	ASTM D5185m	>5	<1		
Nickel	ppm	ASTM D5185m	>2	0		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>30	2		
Lead	ppm	ASTM D5185m	>30	0		
Copper	ppm	ASTM D5185m	>150	<1		
Tin	ppm	ASTM D5185m	>5	0		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	8		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	8 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 70		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 70 <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	8 0 70 <1 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	8 0 70 <1 1055 1232		
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	8 0 70 <1 1055 1232 1159	 	
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	8 0 70 <1 1055 1232	 	
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	8 0 70 <1 1055 1232 1159 1382	 	
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	8 0 70 <1 1055 1232 1159 1382 4009 current		
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	0 0 60 1010 1070 1150 1270 2060	8 0 70 <1 1055 1232 1159 1382 4009 current 5		
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	8 0 70 <1 1055 1232 1159 1382 4009 current	 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 >20	8 0 70 <1 1055 1232 1159 1382 4009 current 5 2	 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 ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	8 0 70 <1 1055 1232 1159 1382 4009 <u>current</u> 5 2 0 0	 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 20 limit/base >20	8 0 70 <1 1055 1232 1159 1382 4009 <u>current</u> 5 2 0 0 <u>current</u> 0.3	 history1 history1 	 history2 history2
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	8 0 70 <1 1055 1232 1159 1382 4009 current 5 2 0 0	 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 <i>limit/base</i> >20 <i>limit/base</i> >3 >20	8 0 70 <1 1055 1232 1159 1382 4009 <i>current</i> 5 2 0 <i>current</i> 0.3 8.1	 history1 history1 history1	history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 200 200 200 200 200 200	8 0 70 <1 1055 1232 1159 1382 4009 <i>current</i> 5 2 2 0 <i>current</i> 0.3 8.1 19.3 <i>current</i>	 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 D5185m	0 0 0 1010 1070 1150 1270 2060 2060 2060 20 20 20 20 20 20 20 20 20 20 20 20 20	8 0 70 <1 1055 1232 1159 1382 4009 <u>current</u> 5 2 0 <u>current</u> 0.3 8.1 19.3	history1 history1 history1 history1 history1	history2 history2



Base

13 Abnormal 12 11 Aug15/23

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		
Aug15/23	Appearance	scalar '	*Visual	NORML	NORML		
Aug	Odor	scalar '	*Visual	NORML	NORML		
C	Emulsified Water		*Visual	>0.2	NEG		
	Free Water	scalar '	*Visual		NEG		
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt /	ASTM D445	15.4	14.0		
	GRAPHS						
······································	Ferrous Alloys						
	14 iron						
	12						
	10-						
	8						
	6						
	4						
	2						
	0			******			
	Aug15/23			Aug15/23			
	Aug			Aug			
	Non-ferrous Metals	5					
	10 copper						
	8 - management lead						
	8- 8-						
	4						
	2-						
	0	**************	******				
	Aug15/23			Aug15/23			
	Aug			Aug			
	Viscosity @ 100°C				Base Number		
	¹⁹ T				Base Number	****	
	19 18 - Abnormal			10.0			
	19 18 - Abnormal 17 -			10.0			
	19 18 - Abnormal 17 -			10.0			
	19 18 Abnomal 17			10.0			
	Abnormal 17 30 16 316 316 316 316 316 316 316			10.0- (6) HO X (6) HO X (7) HO			
	19 18 Abnomal 17 5 6 15 6 14			10.0 (0) 8.0 HOX DB HOX DB Jag			
	Abnomal 17 5 16 15 15 4 Abnomal 15 4 Abnomal 15 14 13 12 11			10.0- (0,0)HOX But back But ba			
	Abnomal 17 5 16 15 15 4 Abnomal 15 4 Abnomal 15 14 13 12 11			10.0- (0,0)HOX But back But ba			1523-
	Abnormal Base Base 314 14 Abnormal			10.0- (6) HO X Bun bun bun gun bun gun gun bun gun bun gun bun gun bun gun bun gun bun gun bun gun bun			Augl 5/23
Laboratory	Abnomal Abnomal Base Abnomal Abnomal Abnomal Control (Control (Contro		n Ave Ca	10.0 (B/HOX) Bases Mumber 2.0 CZ/ST DATA	Base	ironmental - 92	
Laboratory Sample No.	Abnomal Base definition abnomal abnomal control of the second sec			10.0 (B/HOX) Bases Mumber 2.0 CZ/ST DATA	Base		7 - Medford HC
Sample No. Lab Number	Abnomal Base Base Control of the second s	01 Madisc Received Diagnosed	: 28 A d : 28 A	10.0- (%)HOX BUL 30 10.0- (%)HOX BUL 30 10.0- (%)HOX BUL 30 10.0-	Base		7 - Medford HC 5 Jensen Drive Medford, W
Sample No. Lab Number Unique Number	Abnomal Base Base Base Base Base Base Base Base Base Control of the second s	01 Madisc Received	: 28 A d : 28 A	10.0- (B)HOY BUI 10.0- (B)HOY	Base	645	7 - Medford HC 5 Jensen Drive Medford, W US 54541
Certificate L2367 Sample No. Lab Number Unique Number Test Package	Abnomal Base Base Base Abnomal Abnomal Control of the second secon	01 Madisc Received Diagnosed Diagnostic	:28/ d :28/ cian :Wes	10.0- (%)400 Bul here (%)400 Bul here	Base	645	7 - Medford HC 5 Jensen Drive Medford, W US 54541
Sample No. Lab Number Unique Number	Abnormal Base Abnormal Abnormal Abnormal C S G S C S S C S S C S S C S S C S S C S S C S S S C S S S C S S S C S S S S S S S S S S S S S	01 Madisc Received Diagnosec Diagnostic ce at 1-80	:28/ d:28/ cian:Wes 20-237-1369	10.0- (%)(%)(%)(%)(%)(%)(%)(%)(%)(%)(%)(%)(%)(Base	645	

Contact/Location: See also GFL904,A,B,C, 927, 938 - Andy Kane - GFL927