

OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 426184

Component Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Sample only) $% \label{eq:commutative}$

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

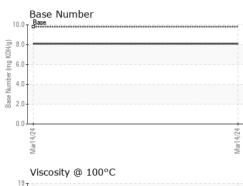
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

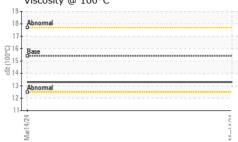
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0116268		
Sample Date		Client Info		14 Mar 2024		
Machine Age	hrs	Client Info		14663		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	8		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	2		
Lead	ppm	ASTM D5185m	>40	0		
Copper	ppm	ASTM D5185m	>330	<1		
Tin	ppm	ASTM D5185m	>15	0		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 87	history1	history2
	ppm ppm				history1 	history2
Boron		ASTM D5185m	0	87		
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	87 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	87 0 95		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	87 0 95 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	87 0 95 0 651		
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	87 0 95 0 651 1371	 	
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	87 0 95 0 651 1371 757		
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	87 0 95 0 651 1371 757 891	 	
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	87 0 95 0 651 1371 757 891 3456		
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	87 0 95 0 651 1371 757 891 3456 current	 history1	 history2
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	87 0 95 0 651 1371 757 891 3456 current 6	 history1	 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 0 1010 1070 1150 1270 2060 limit/base	87 0 95 0 651 1371 757 891 3456 <u>current</u> 6 3	 history1	 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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	87 0 95 0 651 1371 757 891 3456 <u>current</u> 6 3 3 <1	 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 TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	87 0 95 0 651 1371 757 891 3456 current 6 3 <1 current	 history1 	 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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base	87 0 95 0 651 1371 757 891 3456 <i>current</i> 6 3 <1 <i>current</i> 0.2	 history1 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20	87 0 95 0 651 1371 757 891 3456 <i>current</i> 6 3 3 <1 <i>current</i> 0.2 8.9	 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >3 >20 >30	87 0 95 0 651 1371 757 891 3456 <u>current</u> 6 3 <1 current 0.2 8.9 18.7	 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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 33 20 30 20 330	87 0 95 0 651 1371 757 891 3456 current 6 3 <1 current 0.2 8.9 18.7 current	 history1 history1 history1 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	VICONE					
	White Metal	scalar *Vis	ual NONE	NONE		
	Yellow Metal	scalar *Vis				
	Precipitate	scalar *Vis				
				-		
	Silt	scalar *Vis				
	Debris	scalar *Vis				
	Sand/Dirt	scalar *Vis	ual NONE	NONE		
4/24	Appearance	scalar *Vis	ual NORI	ML NORML		
Mar14/24	Odor	scalar *Vis	ual NORM			
	Emulsified Water	scalar *Vis		NEG		
	Free Water	scalar *Vis	uai	NEG		
	FLUID PROPE	RTIES me	ethod limit/	base current	history1	history2
	Visc @ 100°C		M D445 15.4	13.3		
	GRAPHS					
	Ferrous Alloys					
5	iron					
C 1 1	8 - newspace chromium					
- P.4						
	6-					
	udd					
	4					
	2					
	5					
	0					
	14/24		Mar14/24			
	Mari		Marl			
	Non-ferrous Metal	s				
	¹⁰ T					
	copper					
	8 - sesses tin					
	u d					
	1d 4					
	2 -					
	i i i i i i i i i i i i i i i i i i i					
			4			
	0		r14/24			
	Mar14/24		Mar14/24			
	j Viscosity @ 100°C	;	Mar14/24	Baco Numh	er	
	Mar	;	- Mar14/24	Base Numb	er	
	j Viscosity @ 100°C	2	Marl 4.24		er	
	Viscosity @ 100°C	2	Marl 4.24	10.0 Base	er	
	Viscosity @ 100°C	:	Mari 4/24	10.0 Base	er	
	Viscosity @ 100°C		Mari 4/24	10.0 Base	er	
	Viscosity @ 100°C	2	Mari 4/24	10.0 Base	er	
	Viscosity @ 100°C		Mari 4/24	10.0 Base	er	
	Viscosity @ 100°C		Mari 4/24	10.0 - Base (0.8.0	er	
	Viscosity @ 100°C		Mari 4/24	10.0 Base (0,HO) 0 6.0	er	
	Viscosity @ 100°C			10.0 Base (b) 8.0 - (b) HOX 6.0 - 10.0 - 10.0 - Base 8.0 - 10.0 - 10	er	
	Viscosity @ 100°C			10.0 Base (b) 8.0 - (b) HOX 6.0 - 10.0 - 10.0 - Base 8.0 - 10.0 - 10	er	
	Viscosity @ 100°C		Marl4/24 Marl4/24	10.0 T Base (b) HOX 06.0	er	
	Viscosity @ 100°C		Marl 4/24	10.0 Base (b)HOX Buy Jagen With HOX Base (b)HOX Buy Jagen With HOX Base 2.0		
Laboratory	Viscosity @ 100°C	1 Madison Ave	e., Cary, NC 2	10.0 Base (b)HOy BU 10.0 HOY	nvironmental - 625 -	Harrison Haulii
Sample No.	Viscosity @ 100°C	1 Madison Ave Received	e., Cary, NC 2' : 19 Mar 2	10.0 Base 10.0 Base	nvironmental - 625 -	Industrial Pkw
Sample No. Lab Number	Viscosity @ 100°C	1 Madison Ave Received Tested	e., Cary, NC 2' : 19 Mar 2 : 20 Mar 2	10.0 Base (0)HOX BU	nvironmental - 625 -	Harrison Hauliı Industrial Pkv Harrison, N
Sample No. Lab Number Unique Number	Viscosity @ 100°C	1 Madison Ave Received	e., Cary, NC 2' : 19 Mar 2 : 20 Mar 2	10.0 Base 10.0 Base	nvironmental - 625 - 4102	Harrison Haulir Industrial Pkw Harrison, N US 4862
Sample No. Lab Number Unique Number Test Package	Viscosity @ 100°C	1 Madison Ave Received Tested Diagnosed	e., Cary, NC 2' : 19 Mar 2 : 20 Mar 2 : 21 Mar 202	10.0 Base (0)HOX BU	nvironmental - 625 - 4102 Contact: G	Harrison Hauliı Industrial Pkv Harrison, N

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

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