

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 528005-721

Component

Diesel Engine

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

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.

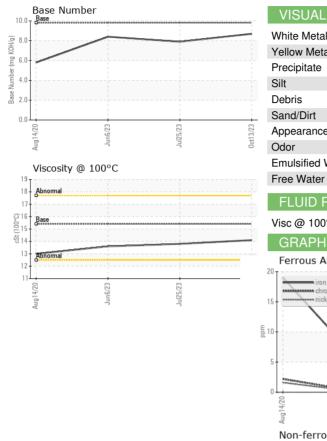
Fluid Condition

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		GFL0091791	GFL0086568	GFL0067952				
Sample Date		Client Info		13 Oct 2023	25 Jul 2023	06 Jun 2023				
Machine Age	hrs	Client Info		6566	6565	6561				
Oil Age	hrs	Client Info		0	0	0				
Oil Changed		Client Info		Not Changd	Changed	Not Changd				
Sample Status				NORMAL	NORMAL	NORMAL				
CONTAMINAT	ION	method	limit/base	current	history1	history2				
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0				
Glycol		WC Method		NEG	NEG	NEG				
WEAR METALS method limit/base current history1 history2										
Iron	ppm	ASTM D5185m	>120	5	10	7				
Chromium	ppm	ASTM D5185m	>20	1	<1	<1				
Nickel	ppm	ASTM D5185m	>5	0	<1	<1				
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1				
Silver	ppm	ASTM D5185m	>2	0	0	0				
Aluminum	ppm	ASTM D5185m	>20	2	4	1				
Lead	ppm	ASTM D5185m	>40	0	0	0				
Copper	ppm	ASTM D5185m	>330	<1	3	1				
Tin	ppm		>15	0	0	0				
Antimony	ppm	ASTM D5185m								
Vanadium	ppm	ASTM D5185m		0	0	0				
Cadmium	ppm	ASTM D5185m		0	0	0				
ADDITIVES		method	limit/base	current	history1	history2				
ADDITIVES Boron	ppm		limit/base 0	4	14	12				
	ppm ppm	ASTM D5185m	0	4 0	14 2					
Boron Barium Molybdenum		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 56	14 2 66	12 0 60				
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 56 0	14 2 66 <1	12 0 60 <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	4 0 56 0 848	14 2 66 <1 964	12 0 60 <1 952				
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	4 0 56 0 848 962	14 2 66 <1 964 1228	12 0 60 <1 952 1173				
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	4 0 56 0 848 962 932	14 2 66 <1 964 1228 1146	12 0 60 <1 952 1173 1091				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	4 0 56 0 848 962 932 1110	14 2 66 <1 964 1228 1146 1382	12 0 60 <1 952 1173 1091 1432				
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 1010 1070 1150 1270 2060	4 0 56 0 848 962 932 1110 2932	14 2 66 <1 964 1228 1146 1382 4199	12 0 60 <1 952 1173 1091 1432 4437				
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 00 00 1010 1070 1150 1270 2060	4 0 56 0 848 962 932 1110 2932 current	14 2 66 <1 964 1228 1146 1382 4199 history1	12 0 60 <1 952 1173 1091 1432 4437 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	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4	14 2 66 <1 964 1228 1146 1382 4199 history1 7	12 0 60 <1 952 1173 1091 1432 4437 history2 4				
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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base	4 0 56 0 848 962 932 1110 2932 current 4 0	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3				
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 0 1010 1070 1150 1270 2060 limit/base >25	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1	14 2 66 <1 964 1228 1146 1382 4199 history1 7	12 0 60 <1 952 1173 1091 1432 4437 history2 4				
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 ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25	4 0 56 0 848 962 932 1110 2932 current 4 0 1	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 2 history1	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 3				
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 limit/base >25 >20 limit/base	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1 1 <u>current</u> 0.3	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 3 history2 0.1				
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1 <u>current</u> 0.3 6.7	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1 8.0	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 history2 0.1 6.7				
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 limit/base >25 >20 limit/base	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1 1 <u>current</u> 0.3	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 3 history2 0.1				
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 t 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	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1 1 <u>current</u> 0.3 6.7 17.5	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1 8.0	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 history2 0.1 6.7				
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 t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20	4 0 56 0 848 962 932 1110 2932 <u>current</u> 4 0 1 1 <u>current</u> 0.3 6.7 17.5	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1 8.0 17.7	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 3 history2 0.1 6.7 18.3				
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	4 0 56 0 848 962 932 1110 2932 current 4 0 1 current 0.3 6.7 17.5	14 2 66 <1 964 1228 1146 1382 4199 history1 7 5 2 history1 0.1 8.0 17.7 history1	12 0 60 <1 952 1173 1091 1432 4437 history2 4 3 3 history2 0.1 6.7 18.3 history2				



OIL ANALYSIS REPORT



	White Metal Yellow Metal Precipitate	scalar scalar	*Visual *Visual	NONE NONE	NONE	NONE	NONE NONE
			visual	NONE	NONE	INDINE	
		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
/23 -		scalar	*Visual	NORML	NORML	NORML	NORML
Jul25/23 0ct13/23	Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
		· · ·		Par 1 // and a			
	FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base	current 14.1	history1 13.8	history2 13.6
	GRAPHS	COL	ASTIVI D445	15.4	14.1	13.0	13.0
	Ferrous Alloys						
	20						
Jul25/23	iron chromium						
Jul2	15 - nickel						
	<u>특</u> 10						
	5-						
		*****		and the second			
	un6/23 -		5/23 -	3/23 -			
	Aug14/20 Jun6/23		Jul25/23	0ct13/23			
	Non-ferrous Metal	ls					
	10 conner_1						
	8+						
	and the second s						
	6						
	E d d						
			-				
	2						
	Concession and the second seco						
	ug14/20 -		Jul25/23 -	3/23			
	Aug14/20 Jun6/23		Jul2	0ct13/23			
	Viscosity @ 100°C	2			Base Number		
	¹⁹ T			10.0			
	18 - Abnormal		1				
	17-			(B/H)			
	Base Base			99 BE 6.0			
	G16 Base 15 3 14			0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0			
	13 - Abnormal			ee 2.0			
	12-						
	11		/23 -	-0.0	/20	23	
	Aug14/20 Jun6/23		Jul25/23	0ct13/23	Aug14/20	Jul25/23	
Laboratory Sample No. Lab Number Unique Number Test Package		GFL Envir	GFL Environmental - 654 - Richmond Hauli 11800 Lewis Roa Chester, V US 2383 Contact: Jimmy May jmayes@gflenv.co				

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Submitted By: TECHNICIAN ACCOUNT