

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

Machine Id 820038-253

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

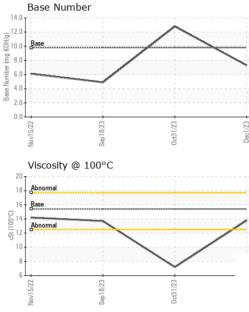
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0103370	GFL0066035	GFL0066073
Sample Date		Client Info		01 Dec 2023	31 Oct 2023	18 Sep 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	SEVERE	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0	1.7	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>100	11	280	28
	ppm			<1	<1	<1
Chromium Nickel	ppm	ASTM D5185m ASTM D5185m	>20 >2	<1	<1	< 1
	ppm		>2			
Titanium Silver	ppm	ASTM D5185m	. 0	0	0	0
	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm		>25	3	22	6
Lead	ppm	ASTM D5185m	>40	0	23	<1
Copper	ppm	ASTM D5185m		2	110	10
Tin	ppm	ASTM D5185m	>15	0	2	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 4	history1	history2 2
	ppm ppm		0			
Boron		ASTM D5185m	0	4	4 94	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	4 0	▲ 94 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 56	 ♦ 94 0 ▲ 16 	2 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 56 <1	 ▶ 94 0 ▲ 16 4 	2 0 62 <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 <1 941	 ▶ 94 0 ▶ 16 4 ▶ 22 	2 0 62 <1 886
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 <1 941 1057	 ▶ 94 0 ▲ 16 4 ▲ 22 ▲ 159 	2 0 62 <1 886 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	4 0 56 <1 941 1057 894	 ▶ 94 0 ▲ 16 4 ▲ 22 ▲ 159 ▲ 192 	2 0 62 <1 886 1068 927
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	4 0 56 <1 941 1057 894 1180	 94 0 16 4 22 159 192 163 	2 0 62 <1 886 1068 927 1200
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 Limit/base	4 0 56 <1 941 1057 894 1180 2967	 ▶ 94 0 ▶ 16 ↓ 4 ▶ 22 ▶ 159 ▶ 192 ▶ 163 ▶ 1247 	2 0 62 <1 886 1068 927 1200 2696
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 0 1010 1070 1150 1270 2060 Limit/base	4 0 56 <1 941 1057 894 1180 2967 current	 ▶ 94 0 ▶ 16 4 ▶ 22 ▶ 159 ▶ 159 ▶ 192 ▶ 163 ▶ 1247 ▶ history1 	2 0 62 <1 886 1068 927 1200 2696 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	4 0 56 <1 941 1057 894 1180 2967 current 5	 ▶ 94 0 ▶ 16 4 ▶ 22 ▶ 159 ▶ 159 ▶ 192 ▶ 163 ▶ 1247 ▶ history1 19 	2 0 62 <1 886 1068 927 1200 2696 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	0 0 60 1010 1070 1150 1270 2060 limit/base	4 0 56 <1 941 1057 894 1180 2967 current 5 4	 94 0 16 4 22 159 192 163 1247 history1 19 466 	2 0 62 <1 886 1068 927 1200 2696 history2 4 6
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 0 1010 1070 1150 1270 2060 Jimit/base >25	4 0 56 <1 941 1057 894 1180 2967 <u>current</u> 5 4 2	 94 0 16 4 22 159 192 163 1247 history1 19 466 37 	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9
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 Imit/base >25	4 0 56 <1 941 1057 894 1180 2967 <u>current</u> 5 4 2 2 <u>current</u>	 ▶ 94 0 ▲ 16 4 ▶ 22 ▲ 159 ▲ 159 ▲ 192 ▲ 163 ▲ 1247 ▶ 1247 ▶ 192 ▲ 466 ▲ 37 ▶ history1 	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 9 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20	4 0 56 <1 941 1057 894 1180 2967 <u>current</u> 5 4 2 2 <u>current</u> 0.5	 94 0 16 4 22 159 192 163 1247 history1 19 466 37 history1 0.1 	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 9 history2 0.9
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	4 0 56 <1 941 1057 894 1180 2967 <i>current</i> 5 4 2 2 <i>current</i> 0.5 7.7	 94 0 16 4 22 159 192 163 1247 history1 19 466 37 history1 0.1 10.7 	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 9 history2 0.9 9.5
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 D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >3 >20 >30 3 imit/base	4 0 56 <1 941 1057 894 1180 2967 current 5 4 2 2 current 0.5 7.7 19.3	 ▶ 94 0 ▲ 16 ₄ ▶ 22 ▲ 159 ▲ 192 ▲ 163 ▲ 1247 ▶ 1247 ▶ 1247 ▶ 1247 ▶ 163 ▲ 166 ▲ 37 ▶ 100 ▶ 100<!--</th--><th>2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 history2 0.9 9.5 22.7 history2</th>	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 history2 0.9 9.5 22.7 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 >3 >20	4 0 56 <1 941 1057 894 1180 2967 <u>current</u> 5 4 2 2 <u>current</u> 0.5 7.7 19.3	 ▶ 94 0 ▲ 16 4 ▶ 22 ▲ 159 ▲ 159 ▲ 192 ▲ 163 ▲ 1247 ▶ 1247 ▶ 192 ▲ 466 ▲ 37 ▶ 100 ▶ 100<th>2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 history2 0.9 9.5 22.7</th>	2 0 62 <1 886 1068 927 1200 2696 history2 4 6 9 history2 0.9 9.5 22.7



OIL ANALYSIS REPORT

VISUAL



\wedge							
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate		*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
1	Debris		*Visual	NONE	NONE	NONE	NONE
· · · · · · · · · · · · · · · · · · ·	Sand/Dirt		*Visual	NONE	NONE	NONE	NONE
/23 -			*Visual	NORML	NORML	NORML	NORML
0ct31/23	Appearance Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water		*Visual	>0.2	NEG	• 0.2%	NEG
	Free Water			>0.2		NEG	NEG
	Free water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPI		method	limit/base	current	history1	history2
/	Visc @ 100°C	cSt	ASTM D445	15.4	13.8	▲ 7.2	13.7
\setminus	GRAPHS						
\sim	Ferrous Alloys		1				
0ct31/23 -	250 - chromium	/	\wedge				
000	200 -		$\langle \rangle$				
	톨 150 -	/					
	100-	/	\rightarrow				
	50	/					
	2 2 2						
	Nov15/22 Sep 18/23		0ct31/23	Dec1/23			
	_		ŏ				
	Non-ferrous Meta	als					
	copper						
	100 - management lead	/	$\langle $				
	80	/					
	E .co						
	튭 60-	/					
	40 -		$\langle \cdot \rangle$				
	20		and the state of t				
		STRATES AND DESCRIPTION OF THE OWNER	No. of Concession, Name				
	23 23		23	53			
	Nov15/22 Sep18/23		0ct31/23	Dec1/23			
	≥ ∽ Viscosity @ 100°		0				
	20 T T				Base Numb	er	
				14.0			
	18 Abnormal		1	12.0		/	
				0	-		
	16 - Base			품 10.0	Base		
				H 10.0-	Base	/	
				Ho 10.0	Base		
	Abnormal		/	e Winnher (mg KoH)	Base		
	Abnormal		/	(0)10.0- HOX 000 8.0- Jun 4.0- eseg	Base		
	Abnormal			H 10.0- H 10.0- B 8.0- B 8.0- B 4.0- 2.0-			
	Abnormal			2.0			
	Abnormal		691/23	2.0		518/23 61/23	
	Abnormal		0dd1/23	2.0	Base	Sep 18/23	
Laboratory Sample No Lab Numbe Unique Numl inter 12367	 WearCheck USA - GFL0103370 er : 06030250 ber : 10780041 		on Ave., Ca : 11 [d : 12 [2.0- 0.0-	Nov15/22	nvironmental - 904 - 0 11888 & 1186 Chip	Chippewa Falls 53 30th Aven opewa Falls, 1 US 547
Sample No Lab Number Unique Num icate L2367 Test Packa	 WearCheck USA - GFL0103370 er : 06030250 ber : 10780041 	501 Madiso Received Diagnose Diagnostio	on Ave., Ca : 11 [d : 12 [cian : Wes	ry, NC 27513 Dec 2023 Sec 2023 S Davis	Nov15/22	nvironmental - 904 - 0 11888 & 1186 Chip	Chippewa Falls

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

Page 2 of 2

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