

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 929108-285

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.

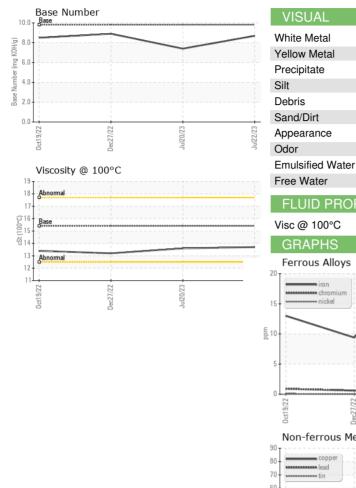
Fluid Condition

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		GFL0066128	GFL0066135	GFL0055738
Sample Date		Client Info		22 Jul 2023	20 Jul 2023	27 Dec 2022
Machine Age	hrs	Client Info		11574	11368	9716
Oil Age	hrs	Client Info		0	600	500
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		mathad	limit/base	ourropt	history1	history?
		method		current		history2
Iron	ppm	ASTM D5185m	>110	9	20	9
Chromium	ppm	ASTM D5185m	>4	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m		0	<1	0
Aluminum	ppm	ASTM D5185m	>25	2	3	<1
Lead	ppm	ASTM D5185m	>45	3	5	2
Copper	ppm	ASTM D5185m	>85	31	<mark>▲</mark> 87	1
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base	current 4	6	28
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4	6	28
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	4 0	6 0 90 1	28 0 69 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	4 0 65	6 0 90	28 0 69
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	4 0 65 1	6 0 90 1	28 0 69 <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 65 1 964	6 0 90 1 933	28 0 69 <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 65 1 964 1133	6 0 90 1 933 1147	28 0 69 <1 952 1383
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 1010 1070 1150	4 0 65 1 964 1133 1014	6 0 90 1 933 1147 1003	28 0 69 <1 952 1383 1072
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 65 1 964 1133 1014 1270	6 0 90 1 933 1147 1003 1229	28 0 69 <1 952 1383 1072 1347
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 65 1 964 1133 1014 1270 3623	6 0 90 1 933 1147 1003 1229 2558	28 0 69 <1 952 1383 1072 1347 3722
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	4 0 65 1 964 1133 1014 1270 3623 current	6 0 90 1 933 1147 1003 1229 2558 history1	28 0 69 <1 952 1383 1072 1347 3722 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 imit/base >30	4 0 65 1 964 1133 1014 1270 3623 current 8	6 0 90 1 933 1147 1003 1229 2558 history1 11	28 0 69 <1 952 1383 1072 1347 3722 history2 6
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 imit/base >30	4 0 65 1 964 1133 1014 1270 3623 current 8 30	6 0 90 1 933 1147 1003 1229 2558 history1 11 11 ▲ 173	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4
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 imit/base >30	4 0 65 1 964 1133 1014 1270 3623 current 8 30 13	6 0 90 1 933 1147 1003 1229 2558 history1 11 11 ▲ 173 ▲ 62	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2
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 >30	4 0 65 1 964 1133 1014 1270 3623 current 8 30 13 current	6 0 90 1 933 1147 1003 1229 2558 history1 11 173 ▲ 173 ▲ 62 history1	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2 2 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 >30 >20 limit/base	4 0 65 1 964 1133 1014 1270 3623 <i>current</i> 8 30 13 <i>current</i> 0.3	6 0 90 1 933 1147 1003 1229 2558 history1 11 11 173 62 history1 0.6	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2 history2 0.4
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 imit/base >30 >20 imit/base >3 >20	4 0 65 1 964 1133 1014 1270 3623 current 8 30 13 current 0.3 6.5	6 0 90 1 933 1147 1003 1229 2558 history1 11 173 ▲ 173 ▲ 62 history1 0.6 10.0	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2 history2 0.4 7.7
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 imit/base >3 20	4 0 65 1 964 1133 1014 1270 3623 current 8 30 13 current 0.3 6.5 18.8	6 0 90 1 933 1147 1003 1229 2558 history1 11 17 173 ▲ 62 history1 0.6 10.0 20.9	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2 2 history2 0.4 7.7 19.7
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 TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2060 2060 2060 2060 200 200 200 200 20	4 0 65 1 964 1133 1014 1270 3623 <i>current</i> 8 30 13 <i>current</i> 0.3 6.5 18.8 <i>current</i>	6 0 90 1 933 1147 1003 1229 2558 history1 11 ▲ 173 ▲ 62 history1 0.6 10.0 20.9 history1	28 0 69 <1 952 1383 1072 1347 3722 history2 6 4 2 history2 0.4 7.7 19.7 history2



OIL ANALYSIS REPORT



		VISUAL		method	limit/base	current	history1	history2
		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
		Precipitate	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
2003	Jul22/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
-		Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
		FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
		Visc @ 100°C	cSt	ASTM D445	15.4	13.7	13.6	13.2
		GRAPHS						
		Ferrous Alloys						
2010011	+ cz/ozinc	15 - iron iron iron iron iron iron iron		\frown				
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		5-						
		0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
		0ct19/22 Dec27/22		Jul20/23	Jul22/23			
		Non-ferrous Meta	ls		-			
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		e ⁵⁰ 40	/					
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		0			Name of Contraction o			
		0ct19/22 Dec27/22		Jul20/23	Jul22/23			
				lul L	Jul			
		Viscosity @ 100°C	C			Base Number		
		18 - Abnormal			10.0	Base		
		17-		1	- 8.0			
					6.0 6.0 8 Base Number 4.0			
		G-00115 314			ළ 6.0	-		
		53 14			¹⁰ 4.0			
		12			ase Nu			
		13 Abnormal		1	<u>2.0</u>			
		11						
				0/23		9/22	1/23	
		0ct19/22 Dec27/22		Jul20/23	Jul22/23	0ct19/22	Jul20/23	
	Laboratory	: WearCheck USA - !	501 Madis Received		ry, NC 27513 Aug 2023		vironmental -	904A - Thor j 85 Tieman A
REDITED INGLADORATORY	Sample No. Lab Number Unique Number Test Package	: <mark>05936924</mark> : 10622195	Diagnose Diagnosti	ed : 29 /	Aug 2023 Aug 2023 s Davis		Cont	Thorp, V US 5477 act: Andy Kar



Submitted By: See also GFL904,A,B,C, 927, 938 - Andy Kane