

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 428022

Component Diesel Engine

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

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.

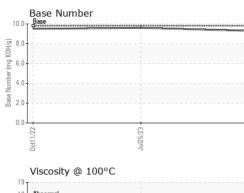
Fluid Condition

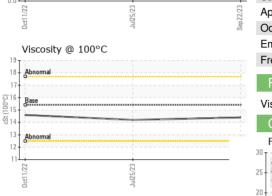
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0084993	GFL0085017	GFL0059175
Sample Date		Client Info		22 Sep 2023	25 Jul 2023	11 Oct 2022
Machine Age	hrs	Client Info		11889	351529	10360
Oil Age	hrs	Client Info		11889	351529	10360
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	ATTENTION	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	10	7	26
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	4	3	7
Lead	ppm	ASTM D5185m	>45	<1	0	0
Copper	ppm	ASTM D5185m	>85	3	0	<1
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		mathad		ourropt		biotom/0
ADDITIVES		method				history2
Boron	ppm	ASTM D5185m	0	2	history1 10	0
	ppm ppm					
Boron		ASTM D5185m	0	2	10	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 0	10 0	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 58	10 0 69	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 58 1	10 0 69 <1	0 0 57 <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	2 0 58 1 994	10 0 69 <1 1052	0 0 57 <1 909
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	2 0 58 1 994 1105	10 0 69 <1 1052 1167	0 0 57 <1 909 1070
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	2 0 58 1 994 1105 1068	10 0 69 <1 1052 1167 1146	0 0 57 <1 909 1070 956
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	2 0 58 1 994 1105 1068 1289	10 0 69 <1 1052 1167 1146 1353	0 0 57 <1 909 1070 956 1228
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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	2 0 58 1 994 1105 1068 1289 3210	10 0 69 <1 1052 1167 1146 1353 3991	0 0 57 <1 909 1070 956 1228 3201
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	2 0 58 1 994 1105 1068 1289 3210 current	10 0 69 <1 1052 1167 1146 1353 3991 history1	0 0 57 <1 909 1070 956 1228 3201 history2
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	2 0 58 1 994 1105 1068 1289 3210 current 11	10 0 69 <1 1052 1167 1146 1353 3991 history1 5	0 0 57 <1 909 1070 956 1228 3201 history2 6
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 limit/base >30	2 0 58 1 994 1105 1068 1289 3210 current 11 4	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 5 & 87	0 0 57 <1 909 1070 956 1228 3201 history2 6 28
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30	2 0 58 1 994 1105 1068 1289 3210 current 11 4 4	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 5 & 87 2	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6
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 >30	2 0 58 1 994 1105 1068 1289 3210 current 11 4 4	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 & 87 2 2 history1	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6 8 4
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 >30 200 limit/base	2 0 58 1 994 1105 1068 1289 3210 current 11 4 4 4 current 0.3	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 87 2 history1 0.2	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6 28 6 history2 0.7
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> >30 <i>limit/base</i> >20	2 0 58 1 994 1105 1068 1289 3210 <i>current</i> 11 4 4 4 <i>current</i> 0.3 6.9	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 \$ 87 2 history1 0.2 6.0	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6 28 6 history2 0.7 8.0
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	2 0 58 1 994 1105 1068 1289 3210 <i>current</i> 11 4 4 4 <i>current</i> 0.3 6.9 18.2	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 ▲ 87 2 history1 0.2 6.0 17.7	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6 28 6 6 history2 0.7 8.0 21.5
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 2060 2060 2060 2	2 0 58 1 994 1105 1068 1289 3210 current 11 4 4 4 current 0.3 6.9 18.2 current	10 0 69 <1 1052 1167 1146 1353 3991 history1 5 ▲ 87 2 history1 0.2 6.0 17.7	0 0 57 <1 909 1070 956 1228 3201 history2 6 28 6 28 6 4 28 6 28 6 28 6 28 6 28 5 21.5 21.5



OIL ANALYSIS REPORT





V	ISUAL		method	limit/base	current	history1	history2
Whi	ite Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yell	low Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Pred	cipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt		scalar	*Visual	NONE	NONE	NONE	NONE
Deb	bris	scalar	*Visual	NONE	NONE	NONE	NONE
	nd/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
App Sep 22/23	pearance	scalar	*Visual	NORML	NORML	NORML	NORML
B Odc	or	scalar	*Visual	NORML	NORML	NORML	NORML
Emi	ulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free	e Water	scalar	*Visual		NEG	NEG	NEG
F		RTIES	method	limit/base	current	history1	history2
Visc	c@100°C	cSt	ASTM D445	15.4	14.4	14.2	14.6
G	RAPHS						
Fe	errous Alloys						
25 -	iron chromium	1					
	nickel						
20 -							
<u></u> 15							
10-							
5							
122		5/23 -		2/23			
0ct11/22		Jul25/23		Sep22/23			
No	on-ferrous Metals	5					
¹⁰ T -							
8 -	copper lead						
	manananan tin						
6							
틥							
				-			
2							
				desiled			
1/22		5/23		2/23			
0ct11/22		Jul25/23		Sep 22/23			
	iscosity @ 100°C				Base Number		
19 18 - Ab	bnormal			10.0	Base		
17				⊊ ^{8.0}			
ç ¹⁶ − Br	ase			ġ B 60.			
₽ 15				per (m			
⁶³ 14-				4.0-	1		
13 - Ab	bnormal			88 2 0 -			
12							
114		23		0.0	22	23	
ct11/2		Jul25/		ep 22/	lct11/	Jul25/,	
Laboratory : We Sample No. : GFI Lab Number : 059	earCheck USA - 5(10084993 F 964019 D	01 Madiso Received Diagnose	: 28 S d : 29 S	Sep22/23	GFL Envir	onmental - 410 - 39000 Contact:	Michiga Van B Way US

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Submitted By: Belal Dgheish

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