

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 411051

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

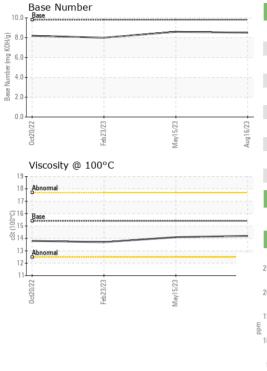
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0089500	GFL0078776	GFL0071450
Sample Date		Client Info		16 Aug 2023	15 May 2023	23 Feb 2023
Machine Age	hrs	Client Info		5429	4892	4299
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	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		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	9	11	16
Chromium	ppm	ASTM D5185m	>20	<1	1	1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		6	5	7
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m		11	14	23
Tin	ppm		>15	1	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
			11 1.0			
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 2	history2 <1
	ppm ppm	ASTM D5185m		1		
Boron Barium	ppm	ASTM D5185m	0		2	<1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 66	2 0 60	<1 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60	1 0 66 <1	2 0	<1 0 60 <1
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 66 <1 1082	2 0 60 <1	<1 0 60
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	1 0 66 <1	2 0 60 <1 1021	<1 0 60 <1 926
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	1 0 66 <1 1082 1172	2 0 60 <1 1021 1101 1040	<1 0 60 <1 926 1075
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	1 0 66 <1 1082 1172 1100	2 0 60 <1 1021 1101	<1 0 60 <1 926 1075 946
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	1 0 66 <1 1082 1172 1100 1411	2 0 60 <1 1021 1101 1040 1358	<1 0 60 <1 926 1075 946 1200
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	1 0 66 <1 1082 1172 1100 1411 3618	2 0 60 <1 1021 1101 1040 1358 3497	<1 0 60 <1 926 1075 946 1200 2397
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	1 0 66 <1 1082 1172 1100 1411 3618 current	2 0 60 <1 1021 1101 1040 1358 3497 history1	<1 0 60 <1 926 1075 946 1200 2397 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 imit/base >25	1 0 66 <1 1082 1172 1100 1411 3618 current 2	2 0 60 <1 1021 1101 1040 1358 3497 history1 3	<1 0 60 <1 926 1075 946 1200 2397 history2 2
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 imit/base >25	1 0 66 <1 1082 1172 1100 1411 3618 <u>current</u> 2 <	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0
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 >25	1 0 66 <1 1082 1172 1100 1411 3618 current 2 <1 4	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11
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 >25 >20 Imit/base >20	1 0 66 <1 1082 1172 1100 1411 3618 current 2 <1 4 current	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7 history1 0.5	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11 11 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 Imit/base >20	1 0 66 <1 1082 1172 1100 1411 3618 <u>current</u> 2 <1 4 <u>current</u>	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7 history1	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11 1 history2 0.5
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	1 0 66 <1 1082 1172 1100 1411 3618 <i>current</i> 2 <1 4 <i>current</i> 0.5 7.4	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7 history1 0.5 7.5	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11 history2 0.5 8.3
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	1 0 66 <1 1082 1172 1100 1411 3618 <i>current</i> 2 <1 4 <i>current</i> 0.5 7.4 19.3 <i>current</i>	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7 history1 0.5 7.5 19.6 history1	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11 history2 0.5 8.3 19.9
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 <i>limit/base</i> >25 <i>limit/base</i> >3 >20 <i>limit/base</i> >3 20	1 0 66 <1 1082 1172 1100 1411 3618 <u>current</u> 2 <1 4 <u>current</u> 0.5 7.4 19.3	2 0 60 <1 1021 1101 1040 1358 3497 history1 3 <1 7 history1 0.5 7.5 19.6	<1 0 60 <1 926 1075 946 1200 2397 history2 2 0 11 history2 0.5 8.3 19.9 history2



OIL ANALYSIS REPORT

VISUAL



		VICONE					
		White Metal		sual NONE	NONE	NONE	NONE
		Yellow Metal		sual NONE	NONE	NONE	NONE
		Precipitate Silt		sual NONE	NONE	NONE NONE	NONE
	Debris		sual NONE	NONE	NONE	NONE	
	Sand/Dirt		sual NONE	NONE	NONE	NONE	
- 22	/23 +			sual NORML		NORML	NORML
Mav15/23	Aug16/23	Odor		sual NORML		NORML	NORML
		Emulsified Water		sual >0.2	NEG	NEG	NEG
2		Free Water		sual	NEG	NEG	NEG
		FLUID PROPE	RTIES m	ethod limit/ba	ase current	history1	history2
		Visc @ 100°C		FM D445 15.4	14.2	14.1	13.7
		GRAPHS					
		Ferrous Alloys					
	2	25 iron					
Mav15/23	ал – 1, т	20 - chromium					
2	-	15					
		udd					
		10-					
		5-					

		53 23	23 -	23			
		0ct20/22 Feb23/23	May15/23	Aug16/23			
		Non-ferrous Meta		4			
		35 T					
		30 - copper					
		25					
		E 15					
		ā 15-					
		10					
		5					
		0					
		0ct20/22 Feb23/23	May15/23	Aug16/23			
				Aug			
		Viscosity @ 100°C	C		Base Number		
		18 - Abnormal			10.0 Base		
		17-					
		⊖ ¹⁶ Pm			(B)H (B)H (B)H (B)H (B)H (B)H (B)H (B)H		
		G 16 15 15 14			6.0- E		
		^ਲ 14			4.0		
		13 - Abnormal			2.0-		
		12					
		11 + 22 52	23	23	0.0	2	3
		0ct20/22 Feb23/23	May15/23	Aug16/23	0ct20/22	Mard 5/23	c d'a privi
Certificate L2367	Laboratory Sample No. Lab Number Unique Number Test Package s sample report.		630 E Contac	mental - 918 - Hartland H 630 E Industrial Driv Hartland, W US 5302 Contact: David McCa david.mccall@gflenv.cor T: (262)369-306			

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