

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 912063

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

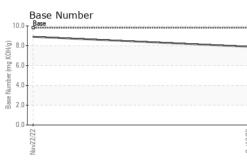
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

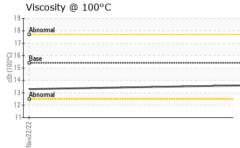
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086738	GFL0060637	
Sample Date		Client Info		12 Oct 2023	22 Nov 2022	
Machine Age	hrs	Client Info		4804	2332	
Oil Age	hrs	Client Info		4804	2332	
Oil Changed		Client Info		Changed	Not Changd	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	6	11	
Chromium	ppm	ASTM D5185m	>4	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	0	
Titanium	ppm	ASTM D5185m		<1	0	
Silver	ppm	ASTM D5185m	>2	0	<1	
Aluminum	ppm	ASTM D5185m	>25	2	4	
Lead	ppm	ASTM D5185m	>45	0	0	
Copper	ppm	ASTM D5185m	>85	<1	3	
Tin	ppm	ASTM D5185m	>4	<1	<1	
Vanadium	ppm	ASTM D5185m	21	0	0	
Cadmium	ppm	ASTM D5185m		۲ ح1	0	
	ppm				-	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	1	5	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	1 0	5 <1	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	1 0 54	5 <1 58	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	1 0 54 <1	5 <1 58 <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	1 0 54 <1 963	5 <1 58 <1 928	
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	1 0 54 <1 963 990	5 <1 58 <1 928 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	1 0 54 <1 963 990 919	5 <1 58 <1 928 1070 980	
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	1 0 54 <1 963 990 919 1235	5 <1 58 <1 928 1070 980 1234	
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	1 0 54 <1 963 990 919	5 <1 58 <1 928 1070 980	
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 54 <1 963 990 919 1235	5 <1 58 <1 928 1070 980 1234	
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	1 0 54 <1 963 990 919 1235 2790	5 <1 58 <1 928 1070 980 1234 3401	
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	1 0 54 <1 963 990 919 1235 2790 current	5 <1 58 <1 928 1070 980 1234 3401 history1	 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	1 0 54 <1 963 990 919 1235 2790 current 3	5 <1 58 <1 928 1070 980 1234 3401 history1 2	 history2
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Limit/base >30	1 0 54 <1 963 990 919 1235 2790 current 3 1	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1	 history2
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 60 0 1010 1070 1150 1270 2060 limit/base >30	1 0 54 <1 963 990 919 1235 2790 current 3 1 4	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >20 limit/base	1 0 54 <1 963 990 919 1235 2790 current 3 1 4 current	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6 history1	 history2 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 60 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base >33	1 0 54 <1 963 990 919 1235 2790 current 3 1 4 current 0.4	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6 history1 0.4	 history2 history2 history2
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> >30 220 <i>limit/base</i> >3	1 0 54 <1 963 990 919 1235 2790 current 3 1 4 current 0.4 7.0	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6 history1 0.4 8.8	 history2 history2 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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >30 imit/base >3 20	1 0 54 <1 963 990 919 1235 2790 current 3 1 4 current 0.4 7.0 18.7 current	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6 history1 0.4 8.8 21.1	 history2 history2 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 D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 Iimit/base >30 >20 Iimit/base >3 >20 >30	1 0 54 <1 963 990 919 1235 2790 current 3 1 4 current 0.4 7.0 18.7	5 <1 58 <1 928 1070 980 1234 3401 history1 2 1 6 history1 0.4 8.8 21.1 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
0ct12/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Oct	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.3	
	GRAPHS						
	Ferrous Alloys						
	iron						
	10 - nickel	_					
	8-						
	E 6-			-			
	4						
	2						
	Nov22/22			0ct12/23			
	—			Ō			
	Non-ferrous Meta	IS					
	copper						
	8 - tin						
	6-						
	шd						
	4						
	2						
	22222222222222222222222222222222222222						
	22	********	******	23			
	Nov22/22			0ct12/23			
	≥ Viscosity @ 100°(2		-			
	¹⁹			10	Base Numbe	r	
	18 - Abnormal						
	17			(B)H	8.0 -		
ç	Base			Base Number (mg KOH/g)	6.0		
	Base Base 15 30 14			ber (n			
c	3 14			Num N	H.O		
	13 - Abnormal			Base	2.0		
	12-						
	11				0.0		23 +
	Nov22/22			0ct12/23	Nov22/22		0ct12/23
	Z			0	Z		5
Laboratory	: WearCheck USA -				13 GFL E	nvironmental - 93	
Sample No.		Received		Oct 2023		W144 S64	400 College Ct.
Lab Number		Diagnos		Oct 2023			Muskego, WI US 53150
Unique Number Test Package	: 10708662 : FLEET	Diagnost		s Davis		Contact: Br	
			00 007 106		Contact: Brian Schlomann		

Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. brian.schlomann@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

F:

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