

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 413001

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

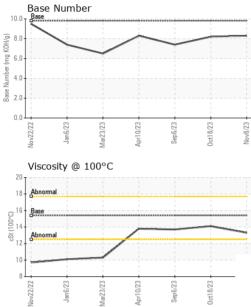
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093530	GFL0093614	GFL0093526
Sample Date		Client Info		08 Nov 2023	18 Oct 2023	06 Sep 2023
Machine Age	hrs	Client Info		2825	2694	2439
Oil Age	hrs	Client Info		418	287	559
Oil Changed		Client Info		Not Changd	Not Changd	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	20	NEG	NEG	NEG
,				NEG		NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	7	3	10
Chromium	ppm	ASTM D5185m	>20	0	0	1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	1	2
Silver	ppm	ASTM D5185m	>3	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	2	2	5
Lead	ppm	ASTM D5185m	>40	0	0	1
Copper	ppm	ASTM D5185m	>330	4	2	13
Tin	ppm	ASTM D5185m	>15	0	<1	3
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 0	history1 3	history2 <1
	ppm ppm					
Boron		ASTM D5185m	0	0	3	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	3 0	<1 44
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 58	3 0 58	<1 44 56
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 58 0	3 0 58 <1	<1 44 56 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	0 0 58 0 1053	3 0 58 <1 976	<1 44 56 1 898
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	0 0 58 0 1053 1156	3 0 58 <1 976 1040	<1 44 56 1 898 978
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	0 0 58 0 1053 1156 1133	3 0 58 <1 976 1040 1068	<1 44 56 1 898 978 907
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	0 0 58 0 1053 1156 1133 1362	3 0 58 <1 976 1040 1068 1274	<1 44 56 1 898 978 907 1153
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	0 0 58 0 1053 1156 1133 1362 3274	3 0 58 <1 976 1040 1068 1274 3096	<1 44 56 1 898 978 907 1153 2927
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	0 0 58 0 1053 1156 1133 1362 3274 current	3 0 58 <1 976 1040 1068 1274 3096 history1	<1 44 56 1 898 978 907 1153 2927 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 0 1010 1070 1150 1270 2060 limit/base	0 0 58 0 1053 1156 1133 1362 3274 current 4	3 0 58 <1 976 1040 1068 1274 3096 history1 4	<1 44 56 1 898 978 907 1153 2927 history2 8
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 method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base	0 0 58 0 1053 1156 1133 1362 3274 current 4 3	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2	<1 44 56 1 898 978 907 1153 2927 history2 8 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 >25	0 0 58 0 1053 1156 1133 1362 3274 <i>current</i> 4 3 7	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15
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 limit/base >20	0 0 58 0 1053 1156 1133 1362 3274 current 4 3 7 current	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3 3 history1	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15 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	0 0 58 0 1053 1156 1133 1362 3274 <i>current</i> 4 3 7 <i>current</i> 0.3	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3 3 history1 0.2	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15 history2 0.3
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 TS 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	0 0 58 0 1053 1156 1133 1362 3274 <i>current</i> 4 3 7 <i>current</i> 0.3 7.0	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3 history1 0.2 5.9	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15 history2 0.3 7.5
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	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 20 20 20 20 20 20 20 20 20 20 20 20	0 0 58 0 1053 1156 1133 1362 3274 <i>current</i> 4 3 7 <i>current</i> 0.3 7.0 19.0	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3 history1 0.2 5.9 18.0 history1	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15 history2 0.3 7.5 19.3 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >3 >20	0 0 58 0 1053 1156 1133 1362 3274 current 4 3 7 current 0.3 7.0 19.0	3 0 58 <1 976 1040 1068 1274 3096 history1 4 2 3 3 history1 0.2 5.9 18.0	<1 44 56 1 898 978 907 1153 2927 history2 8 4 15 history2 0.3 7.5 19.3



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VISUAL



CREDITES	Laboratory Sample No. Lab Number Unique Number Test Package	: GFL0093530 : 06003459 : 10737221 : FLEET	501 Madison Ave., Cary, NC 27513 Received : 09 Nov 2023 Diagnosed : 10 Nov 2023 Diagnostician : Wes Davis vice at 1-800-237-1369.			3 GFL Enviro	GFL Environmental - 891 - Oklahoma City Haulin 1001 South Rockwe Oklahoma City, Ol US 7312 Contact: Andy Smiti andrew.smith@gflenv.cor			
		(J-001)4 Abnormal 12 10 8 22/27/0N 8 22/27/0N 8 22/27/0N	Aprilo23	Sep6/23	(b)HOX (U) 4. 4. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	0	Apr10/23 Sep6/23	0ct18/23		
		Viscosity @ 100°	C		10. (B/H0					
		Nov22/22	Apr10/23	Sep6/23	Nov8/23					
		200								
		Non-ferrous Meta	alls	Sep6/23	Nov8/23					
			123	123	73					
Apr10/23 San6/23	-	25 E 20 15								
		GRAPHS Ferrous Alloys								
		FLUID PROPE Visc @ 100°C	cSt	method ASTM D445	limit/base 15.4	current 13.3	history1 14.1	history2 13.7		
		Free Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
Apr1 0/23 Sen6/23	0ct18/23 Nov8/23	Odor Emulsified Water	scalar	*Visual *Visual	NORML	NORML	NORML	NORML		
Apri 10,23 Sep 6,23 Det 18,23	23	Sand/Dirt Appearance	scalar scalar	*Visual *Visual	NONE NORML	NONE	NONE	NONE		
	Silt Debris	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE NONE	NONE NONE			
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE			

Submitted By: Andy Smith

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