

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 713052

Component Diesel Engine

Fluid PETRO CANADA DURON GEO LD 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

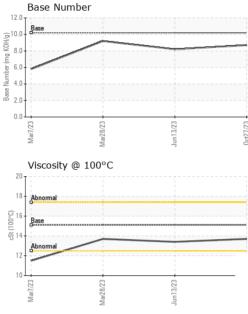
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0093319	GFL0083480	GFL0074183
Sample Date		Client Info		27 Oct 2023	13 Jun 2023	28 Mar 2023
Machine Age	hrs	Client Info		2816	2304	1218
Oil Age	hrs	Client Info		2816	2304	1218
Oil Changed		Client Info		Not Changd	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 METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	9	16	10
Chromium	ppm	ASTM D5185m	>4	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	8	22	14
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	2	1	4
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
					THSLUTY I	
Boron	mag	ASTM D5185m	50	11	1	
	ppm ppm		50			2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	11	1 0	2 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	11 6	1 0 58	2
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5	11 6 41 2	1 0 58 <1	2 2 56
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	11 6 41 2 835	1 0 58 <1 1001	2 2 56 1 888
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	11 6 41 2	1 0 58 <1	2 2 56 1
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	50 5 50 0 560 1510 780	11 6 41 2 835 1199 763	1 0 58 <1 1001 1088 1033	2 2 56 1 888 1116 988
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560 1510	11 6 41 2 835 1199	1 0 58 <1 1001 1088	2 2 56 1 888 1116
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	50 5 50 0 560 1510 780 870	11 6 41 2 835 1199 763 989	1 0 58 <1 1001 1088 1033 1301	2 2 56 1 888 1116 988 1170
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	50 5 50 0 560 1510 780 870 2040	11 6 41 2 835 1199 763 989 2537	1 0 58 <1 1001 1088 1033 1301 3613	2 2 56 1 888 1116 988 1170 3025
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	50 5 50 0 560 1510 780 870 2040	11 6 41 2 835 1199 763 989 2537 current	1 0 58 <1 1001 1088 1033 1301 3613 history1	2 2 56 1 888 1116 988 1170 3025 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 method	50 5 50 0 560 1510 780 870 2040	11 6 41 2 835 1199 763 989 2537 current 21	1 0 58 <1 1001 1088 1033 1301 3613 history1 5	2 2 56 1 888 1116 988 1170 3025 history2 4
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	50 5 50 0 560 1510 780 870 2040 limit/base >30	11 6 41 2 835 1199 763 989 2537 current 21 2	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3	2 2 56 1 888 1116 988 1170 3025 history2 4 2
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	50 50 00 560 1510 780 870 2040 limit/base >30	11 6 41 2 835 1199 763 989 2537 current 21 2 2 34	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62	2 2 56 1 888 1116 988 1170 3025 history2 4 2 38
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 ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >30 2040	11 6 41 2 835 1199 763 989 2537 current 21 2 34 current	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62 history1	2 2 56 1 888 1116 988 1170 3025 history2 4 2 38 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 ppm	ASTM D5185m ASTM D5185m	50 50 0 560 1510 780 870 2040 limit/base >30 2040	11 6 41 2 835 1199 763 989 2537 <i>current</i> 21 2 34 <i>current</i> 0.1	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62 history1 0.3	2 2 56 1 888 1116 988 1170 3025 history2 4 2 38 history2 0.1
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	50 50 560 1510 780 870 2040 imit/base >30 220 imit/base >3 20	11 6 41 2 835 1199 763 989 2537 <i>current</i> 21 21 2 34 <i>current</i> 0.1 6.6	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62 history1 0.3 7.8	2 2 56 1 888 1116 988 11170 3025 history2 4 2 38 history2 0.1 5.8
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	50 50 560 1510 780 870 2040 imit/base >30 imit/base >3 20	11 6 41 2 835 1199 763 989 2537 <i>current</i> 21 2 34 <i>current</i> 0.1 6.6 24.9	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62 history1 0.3 7.8 19.5	2 2 56 1 888 1116 988 1170 3025 history2 4 2 38 history2 0.1 5.8 18.2
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 D7844 *ASTM D7624	50 50 560 1510 780 870 2040 imit/base >30 220 imit/base >3 >20 30	11 6 41 2 835 1199 763 989 2537 <i>current</i> 21 21 2 34 <i>current</i> 0.1 6.6 24.9 <i>current</i>	1 0 58 <1 1001 1088 1033 1301 3613 history1 5 3 62 history1 0.3 7.8 19.5 history1	2 2 56 1 888 1116 988 1170 3025 history2 4 2 38 history2 0.1 5.8 18.2 history2



OIL ANALYSIS REPORT

VISUAL



	VIOUAL	пслоа	innibase		nistoryz	
: : :	White Metal	scalar *Visual	NONE N	IONE NON	NE NONE	
	Yellow Metal	scalar *Visual	NONE	IONE NON	NE NONE	
	Precipitate	scalar *Visual	NONE N	IONE NON	NE NONE	
	Silt	scalar *Visual	NONE N	IONE NON	NE NONE	
	Debris	scalar *Visual	NONE N	IONE NON	NE NONE	
	Sand/Dirt	scalar *Visual	NONE N	IONE NON	NE NONE	
3/23	Appearance	scalar *Visual	NORML N	IORML NOF	RML NORML	
Jun13/23	Odor	scalar *Visual	NORML	IORML NOF	RML NORML	
	Emulsified Water	scalar *Visual		IEG NEG	G NEG	
	Free Water	scalar *Visual		IEG NEG		
	FLUID PROPE	ERTIES method	limit/base	current his	story1 history2	
	Visc @ 100°C	cSt ASTM D44		3.7 13.4		
	GRAPHS					
	Ferrous Alloys					
Jun13/23 + -	60 - iron chromium nickel					
П,	50					
	Ē_30					
	20					
	10-					
	0					
	Mar7/23 Mar28/23	Jun 13/23	0ct27/23			
	2		0			
	Non-ferrous Meta	IIS				
	16 - copper					
	14-					
	12					
	6					
	4					
	2-					
		2	33			
	Mar7/23 Mar28/23	Jun13/23	0ct27/23			
	∠ ≥ Viscosity @ 100°		0			
	¹⁹ 1		Ba 12.0 T	se Number		
	18 Abnormal		Bas	je		
	17		10.0 -			
	16- 2 Base		Q 8.0-			
	60 15 - Base 00 15 - 14		ja 6.0-			
			4.0			
	Abnormal		Base			
	11		2.0			
	10		0.0			
	Mar7/23 Mar28/23	Jun 13/23	0ct27/23 Mar7/23	Mar28/23	Jun 13/23	
	Mar Mar2	Lunl	0ct2 Ma	Mar2	Jun1	
Laborato				GFL Environmental - 865 - East Mount Haulir		
Sample N Lab Num		Received : 03 Diagnosed : 06	/213 Eas	st Mount Houston Roa Houston, T		
		Diagnosed : 00				
				US 7705 Contact: Soul Castil		
ificate L2367 Test Pac					Contact: Saul Castil	
ificate L2367 Test Pac discuss this sample re		/ice at 1-800-237-13		sa	Contact: Saul Castil aul.castillo@gflenv.co ۲	

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Submitted By: TECHNICIAN ACCOUNT