

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 849000

Component Natural Gas Engine

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.

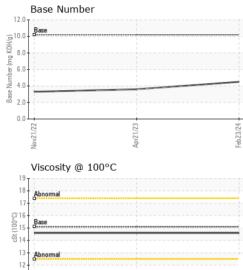
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0098076	GFL0065047	GFL0060636
Sample Date		Client Info		23 Feb 2024	21 Apr 2023	21 Nov 2022
Machine Age	hrs	Client Info		15317	12986	11811
Oil Age	hrs	Client Info		15317	12986	11811
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.1	NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	24	19	16
Chromium	ppm	ASTM D5185m	>4	4	3	2
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	4	3
Lead	ppm	ASTM D5185m	>30	6	2	7
Copper	ppm	ASTM D5185m	>35	<1	1	1
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	13	3	7
Barium	ppm ppm	ASTM D5185m ASTM D5185m	50 5	13 0	0	7 0
				-	0 59	
Barium	ppm	ASTM D5185m	5	0	0	0
Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	5 50 0 560	0 54	0 59 <1 607	0 56 <1 592
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0	0 54 <1	0 59 <1	0 56 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780	0 54 <1 629 1915 1004	0 59 <1 607 1820 781	0 56 <1 592 1715 782
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510	0 54 <1 629 1915	0 59 <1 607 1820	0 56 <1 592 1715 782 1002
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780	0 54 <1 629 1915 1004	0 59 <1 607 1820 781	0 56 <1 592 1715 782
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	5 50 0 560 1510 780 870	0 54 <1 629 1915 1004 1103	0 59 <1 607 1820 781 1008	0 56 <1 592 1715 782 1002
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 Limit/base	0 54 <1 629 1915 1004 1103 4216	0 59 <1 607 1820 781 1008 2743 history1 4	0 56 <1 592 1715 782 1002 2891
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	5 50 0 560 1510 780 870 2040 Limit/base	0 54 <1 629 1915 1004 1103 4216 current	0 59 <1 607 1820 781 1008 2743 history1	0 56 <1 592 1715 782 1002 2891 history2
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	5 50 0 560 1510 780 870 2040 limit/base >+100	0 54 <1 629 1915 1004 1103 4216 current 6	0 59 <1 607 1820 781 1008 2743 history1 4	0 56 <1 592 1715 782 1002 2891 history2 4
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	5 50 0 560 1510 780 870 2040 limit/base >+100	0 54 <1 629 1915 1004 1103 4216 current 6 10 3	0 59 <1 607 1820 781 1008 2743 history1 4 12	0 56 <1 592 1715 782 1002 2891 history2 4 12
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 ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	5 50 0 560 1510 780 870 2040 limit/base >+100	0 54 <1 629 1915 1004 1103 4216 current 6 10 3	0 59 <1 607 1820 781 1008 2743 history1 4 12 0	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1
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	5 50 0 560 1510 780 870 2040 <i>limit/base</i> >+100 220 <i>limit/base</i>	0 54 <1 629 1915 1004 1103 4216 <i>current</i> 6 10 3 <i>current</i>	0 59 <1 607 1820 781 1008 2743 history1 4 12 0 history1	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1 history2
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	5 50 0 560 1510 780 870 2040 <i>limit/base</i> >+100 220 <i>limit/base</i>	0 54 <1 629 1915 1004 1103 4216 current 6 10 3 0	0 59 <1 607 1820 781 1008 2743 history1 4 12 0 history1 0	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1 <1 history2 0.1
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	5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	0 54 <1 629 1915 1004 1103 4216 <u>current</u> 6 10 3 <u>current</u> 0 11.8	0 59 <1 607 1820 781 1008 2743 history1 4 12 0 history1 0 history1 0 14.0	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1 12 <1 history2 0.1 14.2
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	5 50 0 560 1510 780 870 2040 2040 2040 2040 2040 2040 2040 20	0 54 <1 629 1915 1004 1103 4216 <i>current</i> 6 10 3 <i>current</i> 0 11.8 38.1	0 59 <1 607 1820 781 1008 2743 history1 4 12 0 history1 0 history1 0 14.0 27.4	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1 kistory2 0.1 14.2 29.1
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	5 50 0 560 1510 780 870 2040 2040 2040 2040 2040 2040 2040 20	0 54 <1 629 1915 1004 1103 4216 current 6 10 3 current 0 11.8 38.1 current	0 59 <1 607 1820 781 1008 2743 history1 4 12 0 history1 0 history1 0 14.0 27.4 history1	0 56 <1 592 1715 782 1002 2891 history2 4 12 <1 history2 0.1 14.2 29.1 history2



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Nov21/22

OIL ANALYSIS REPORT



White Metal Yellow Metal		method	limit/base	current	history1	history2	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	scalar	*Visual	NONE	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	NEG	
FLUID PROPE	ERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.1	14.6	14.6	14.6	
GRAPHS							
Ferrous Alloys							
iron			and the second				
20 - nickel							
15							
5-							
1/22	1/23 -		3/24				
Nov2	Apr2		Feb2				
Non-ferrous Meta	ls						
8							
-							
E 6			an reason of the second				
dd 4		And the second second					
	-	Sa Martin Street					
2	and a second sec						
0							
1/22 -	1/23 -		3/24 .				
Nov2	Apr2		Feb2				
Viscosity @ 100°	C			Base Number			
			12.0	Base			
18 Abnormal							
18 Abnormal			10.0 \$				
Abnormal 17			10.0 (B/HOX 8.0				
Abnormal 17			10.0 (b)(HO) 8.0 (b)(HO) 8.0 (b)(HO) 8.0 (b)(HO) 8.0 (c)(HO) 8.0 (
2000 15			10.0 (6)(HO) 8.0 (6.0 (0.0) aquun 10 (0.0) a 4.0				
Abnormal			0.8 Virumber (mg KOH/g)				
Abnormal			(D) 8.0 HOX Bu ta 6.0 asee 2.0				
Abnormal	Apr21/23		0.8 Virumber (mg KOH/g)		Apr21/23		
	Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys	Odor scalar Emulsified Water scalar Free Water scalar FLUID PROPERTIES Visc @ 100°C cSt GRAPHS Ferrous Alloys Control of the scalar Ferrous Alloys Ferrous Alloys Control of the scalar Ferrous Alloys Non-ferrous Metals	Odor scalar *Visual Emulsified Water scalar *Visual Free Water scalar *Visual FLUID PROPERTIES method Visc @ 100°C cSt ASTM D445 GRAPHS Ferrous Alloys Ferrous Alloys Non-ferrous Metals	Odor scalar *Visual NORML Emulsified Water scalar *Visual >0.1 Free Water scalar *Visual >0.1 Free Water scalar *Visual >0.1 Fullio PROPERTIES method limit/base Visc @ 100°C cSt ASTM D445 15.1 GRAPHS Ferrous Alloys Output Output Non-ferrous Metals Output Output Output Output Output Output Non-ferrous Metals Output Output <td colspa="</td"><td>Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual >0.1 NEG Free Water scalar *Visual >0.1 NEG Free Water scalar *Visual Other Content Visc @ 100°C cSt ASTM D445 15.1 14.6 GRAPHS Ferrous Alloys Outright Content of the Content of the</td><td>Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG Free Water scalar *Visual NEG NEG FLUID PROPERTIES method imit/base current history1 Visc @ 100°C cSt ASTM D445 15.1 14.6 14.6 GRAPHS Ferrous Alloys</td></td>	<td>Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual >0.1 NEG Free Water scalar *Visual >0.1 NEG Free Water scalar *Visual Other Content Visc @ 100°C cSt ASTM D445 15.1 14.6 GRAPHS Ferrous Alloys Outright Content of the Content of the</td> <td>Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG Free Water scalar *Visual NEG NEG FLUID PROPERTIES method imit/base current history1 Visc @ 100°C cSt ASTM D445 15.1 14.6 14.6 GRAPHS Ferrous Alloys</td>	Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual >0.1 NEG Free Water scalar *Visual >0.1 NEG Free Water scalar *Visual Other Content Visc @ 100°C cSt ASTM D445 15.1 14.6 GRAPHS Ferrous Alloys Outright Content of the	Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual >0.1 NEG NEG Free Water scalar *Visual NEG NEG FLUID PROPERTIES method imit/base current history1 Visc @ 100°C cSt ASTM D445 15.1 14.6 14.6 GRAPHS Ferrous Alloys

Submitted By: GFL932, GFL414 - BECKY FLETCHER