

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 733006

Component Natural Gas Engine

PETRO CANADA DURON GEO LD 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

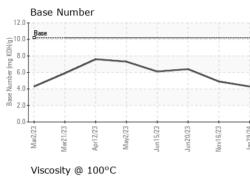
Fluid Condition

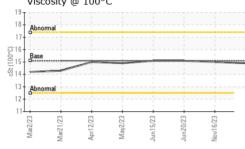
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

-		11012020	Aar2023 Apr2023 May20			
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092109	GFL0092020	GFL0084745
Sample Date		Client Info		29 Jan 2024	16 Nov 2023	20 Jun 2023
Machine Age	hrs	Client Info		3702	3072	18232
Oil Age	hrs	Client Info		18232	18232	0
Oil Changed		Client Info		Changed	Changed	Changed
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	5	9	7
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	1	2
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>35	2	1	<1
Tin	ppm	ASTM D5185m	>4	<1	0	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	50	current 7	history1 7	15
	ppm ppm					
Boron		ASTM D5185m	50	7	7	15
Boron Barium	ppm	ASTM D5185m ASTM D5185m	50 5	7 0	7 <1	15 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50	7 0 59	7 <1 55	15 0 53
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0	7 0 59 <1	7 <1 55 <1	15 0 53 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	50 5 50 0 560	7 0 59 <1 540	7 <1 55 <1 551	15 0 53 <1 609
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	7 0 59 <1 540 1644	7 <1 55 <1 551 1600	15 0 53 <1 609 1650
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	7 0 59 <1 540 1644 677	7 <1 55 <1 551 1600 678	15 0 53 <1 609 1650 746
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	7 0 59 <1 540 1644 677 997 2436	7 <1 55 <1 551 1600 678 976	15 0 53 <1 609 1650 746 1000
Boron 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	50 5 50 0 560 1510 780 870 2040 limit/base >+100	7 0 59 <1 540 1644 677 997 2436	7 <1 55 <1 551 1600 678 976 2504	15 0 53 <1 609 1650 746 1000 2997
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 limit/base >+100	7 0 59 <1 540 1644 677 997 2436 current	7 <1 55 <1 551 1600 678 976 2504 history1	15 0 53 <1 609 1650 746 1000 2997 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 limit/base >+100	7 0 59 <1 540 1644 677 997 2436 current 3	7 <1 55 <1 551 1600 678 976 2504 history1 4	15 0 53 <1 609 1650 746 1000 2997 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	50 5 50 560 1510 780 870 2040 limit/base	7 0 59 <1 540 1644 677 997 2436 current 3 4 2	7 <1 55 <1 551 1600 678 976 2504 history1 4 6	15 0 53 <1 609 1650 746 1000 2997 history2 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100	7 0 59 <1 540 1644 677 997 2436 <u>current</u> 3 4 2	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	7 0 59 <1 540 1644 677 997 2436 <u>current</u> 3 4 2 2 <u>current</u>	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2 2 history1	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1 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	50 5 50 0 560 1510 780 870 2040 limit/base >+100 >20 limit/base	7 0 59 <1 540 1644 677 997 2436 <u>current</u> 3 4 2 2 <u>current</u> 0	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2 2 history1 0	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1 5 <1 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 5 50 0 560 1510 780 870 2040 limit/base >+100 limit/base	7 0 59 <1 540 1644 677 997 2436 <u>current</u> 3 4 2 2 <u>current</u> 0 11.5 22.1	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2 2 history1 0 11.1	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1 5 <1 history2 0.1 10.3
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	50 5 50 0 560 1510 780 870 2040 2040 2040 2040 2040 20 20 20 20 20 20 20 20 20 20 20 20 20	7 0 59 <1 540 1644 677 997 2436 <u>current</u> 3 4 2 2 <u>current</u> 0 11.5 22.1	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2 2 history1 0 11.1 21.9	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1 ×1 history2 0.1 10.3 21.2
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	50 5 50 560 1510 780 870 2040 imit/base >+100 20 imit/base >20 imit/base	7 0 59 <1 540 1644 677 997 2436 current 3 4 2 2 current 0 11.5 22.1	7 <1 55 <1 551 1600 678 976 2504 history1 4 6 2 2 history1 0 11.1 21.9 history1	15 0 53 <1 609 1650 746 1000 2997 history2 4 5 <1 history2 0.1 10.3 21.2 history2



OIL ANALYSIS REPORT





			method			history1	history2
	VISUAL White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	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
Nov16/23 Jan29/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nor	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		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.1	14.9	15.0	15.1
	GRAPHS						
	Ferrous Alloys						
23	iron						
Nov16/23	nickel						
	25						
	E ²⁰ 15						
	T15						
	10						
		-					
	5						
	0 prossesses and a second seco						
	Mar2/23 Mar21/23 Apr12/23	May2/23 Jun15/23	Jun20/23 Nov16/23	Jan 29/24			
	Mar	Jun	Jun	Jan			
	Non-ferrous Meta	de					
		115					
	18 _T	115 					
		115					
	¹⁸						
	18 16 14 12	115					
	18 16 14 12	115					
	18 16 14 12 <u>E</u> 10 8	115					
	18 16 14 12	115					
	18 16 14 12 E 10 8 6 4						
	18 16 14 12 E 10 8 6 4 2 10 10 10 10 10 10 10 10 10 10						
	18 16 14 12 10 8 6 4 2 0 10 10 10 10 10 10 10 10 10		EZI				
	18 16 14 10 10 10 10 10 10 10 10 10 10		+ 1	12020/24 Harrison			
	18 16 14 12 10 8 6 4 2 0 EZZIPEW EZZIP	May223	+ 1				
	18 16 14 10 10 10 10 10 10 10 10 10 10	May223	+ 1	Jan 29/24	Base Numbe	r	
	¹⁸ ¹⁶	May223	+ 1	+2/62uer	Base	r	
	18 16 14 12 10 8 6 4 2 0 EZZIJU W Viscosity @ 100° 19	May223	+ 1	+2/62uer 12.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 CZ 17 EZ 10 CZ CZ CZ CZ CZ CZ CZ CZ CZ CZ	May223	+ 1	+2/62uer 12.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 CZ 17 EZ 10 CZ CZ CZ CZ CZ CZ CZ CZ CZ CZ	May223	+ 1	+2/62uer 12.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 CZ 17 EZ 10 CZ CZ CZ CZ CZ CZ CZ CZ CZ CZ	May223	+ 1	+2/62uer 12.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 EZZIM W Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	May223	+ 1	+2/62uer 12.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 EZZIM W Viscosity @ 100° 19 8 4 10 10 10 10 10 10 10 10 10 10	May223	+ 1	12.0 (0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0	Base	r	
	18 16 14 12 10 8 6 4 2 0 EZZIM W Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	May223	+ 1	12.0 (0)10.0 (0)100 Bull a 6.0 (0)100 Bull a 6.0	Base	r	
	18 16 14 12 10 8 6 4 2 0 EZIZEW Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	C Marza (ES22)	52/02/nuL	12.0 (0)(H)(Base		3
	18 16 14 12 10 8 6 4 2 0 EZIZEW Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	C Marza (ES22)	52/02/nuL	12.0 (0)(H)(Base		n2023
	18 16 14 12 10 8 6 4 2 0 EZZIUG W Viscosity @ 100° 19 16 16 16 16 17 16 16 10 10 10 10 10 10 10 10 10 10	May223	+ 1	12.0 (0)10.0 (0)100 Bull a 6.0 (0)100 Bull a 6.0	Base		Jun2023
ratory	18 16 14 12 10 8 6 4 2 0 EZIZEW Viscosity @ 100° 19 10 10 10 10 10 10 10 10 10 10	May2/23 Mar2/23 Juni5/23	Jun20/23 Jun20/23 Nov16/23 Nov16/23 Nov16/23 Nov16/23 Nov16/23	+2/62/Jer (6)(HO), Bull Berling (6)(HO), Bull (6)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bul	Mai2/223		
	18 16 14 10 10 8 6 4 2 0 EZIZEW Wiscosity @ 100° 13 14 15 14 15 14 10 10 10 10 10 10 10 10 10 10	May2/23 Mar2/23 Juni5/23	EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf Son Ave., Ca	+2/62/Jer (6)(HO), Bull Berling (6)(HO), Bull (6)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bull (7)(HO), Bul	Mai2/223	EZCliew ecclosed	6 - Houston Sou
ratory	Viscosity @ 100° backgroup of the second of	c EZIZ/NeW C EZIZ/NeW 501 Madia	EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf EZ/07/unf	+2/67.200 (0)HOX Bull (0)HOX	Mai2/223	EZCliew ecclosed	i - Houston Sou lighway 6 Sou Houston, 1
ratory ble No. Number e Number	¹⁸ ¹⁶ ¹⁰ ¹¹	c EZIZ/NeW C EZIZ/NeW 501 Madia Recieved	EZ(0Zunr EZ(+2/67uer 12.0 (0)HOX Bull a 6.0 10.0 1	Mai2/223	EZZ/Legy evironmental - 856 8515 H	i - Houston Sou lighway 6 Sou Houston, 1 US 7708
ratory ble No. Number e Number Package	Viscosity @ 100° backgroup of the second of	C EZIZIVEW C EZIZIVEW C EZIZIVEW C EZIZIVEW EZIZIVEW C EZIZIVEW C EZIZIVEW EZIZIVEW C EZIZIVEW EZIZIVEW EZIZIVEW EZIZIVE EZIZIVEW EZIZIVE EZIZIV	EZ072mr EZ072m	12.0 10.0	Mai2/223	EZZ/Legy exironmental - 856 8515 H Contact: Aj	

To discuss this sample * - 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)

Certificate L2367

F: