

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **Z967** Component **Biogas Engine** Fluid **PETRO CANADA SENTRON LD 5000 (--- 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

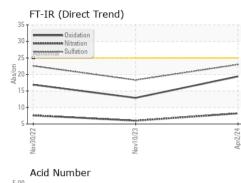
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

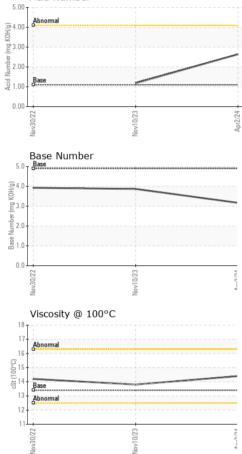
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0069074	PCA0069078	PCA0069033
Sample Date		Client Info		02 Apr 2024	10 Nov 2023	30 Nov 2022
Machine Age	hrs	Client Info		11767	9462	4823
Oil Age	hrs	Client Info		0	978	1565
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>45	10	4	8
Chromium	ppm	ASTM D5185m	>2	2	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>10	2	2	2
Lead	ppm	ASTM D5185m	>5	3	<1	7
Copper	ppm	ASTM D5185m	>14	1	0	<1
Tin	ppm	ASTM D5185m	>13	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	current <1	history1 0	history2 0
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m	2	<1	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 3 0	<1 0	0 0	0 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 3 0	<1 0 3	0 0 <1	0 <1 1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 3 0 0	<1 0 3 <1	0 0 <1 <1	0 <1 1 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 3 0 0 4	<1 0 3 <1 24	0 0 <1 <1 22	0 <1 1 <1 15
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 3 0 0 4 1727	<1 0 3 <1 24 2102	0 0 <1 <1 22 1935	0 <1 1 <1 15 2242
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	2 3 0 4 1727 272	<1 0 3 <1 24 2102 358	0 0 <1 <1 22 1935 321	0 <1 1 <1 15 2242 373
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	2 3 0 0 4 1727 272 333	<1 0 3 <1 24 2102 358 457	0 0 <1 <1 22 1935 321 395	0 <1 1 <1 15 2242 373 446
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	2 3 0 4 1727 272 333 3415 limit/base	<1 0 3 <1 24 2102 358 457 3819	0 0 <1 <1 22 1935 321 395 3292	0 <1 1 <1 15 2242 373 446 4265
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	2 3 0 4 1727 272 333 3415 limit/base	<1 0 3 <1 24 2102 358 457 3819 current	0 0 <1 <1 22 1935 321 395 3292 history1	0 <1 1 <1 15 2242 373 446 4265 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	2 3 0 4 1727 272 333 3415 imit/base >200	<1 0 3 <1 24 2102 358 457 3819 current 4	0 0 <1 <1 22 1935 321 395 3292 history1 2	0 <1 1 <1 15 2242 373 446 4265 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 method ASTM D5185m	2 3 0 4 1727 272 333 3415 imit/base >200	<1 0 3 <1 24 2102 358 457 3819 current 4 4	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1	0 <1 1 <1 15 2242 373 446 4265 history2 4 3
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	ASTM D5185m ASTM D5185m	2 3 0 4 1727 272 333 3415 limit/base >200	<1 0 3 <1 24 2102 358 457 3819 current 4 4 2	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0	0 <1 1 <1 15 2242 373 446 4265 history2 4 3 0
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	2 3 0 4 1727 272 333 3415 Imit/base >200 \$20	<1 0 3 <1 24 2102 358 457 3819 current 4 4 2 2 current	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1	0 <1 1 <1 15 2242 373 446 4265 history2 4 3 0 bistory2
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	2 3 0 4 1727 272 333 3415 Imit/base >200 \$20	<1 0 3 <1 24 2102 358 457 3819 <i>current</i> 4 4 2 <i>current</i> 0.1	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1 0.1	0 <1 1 <1 15 2242 373 446 4265 history2 4 3 0 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	2 3 0 4 1727 272 333 3415 <i>limit/base</i> >200 <i>limit/base</i>	<1 0 3 <1 24 2102 358 457 3819 <u>current</u> 4 4 2 <u>current</u> 0.1 8.2	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1 0.1 6.0	0 <1 1 <1 2242 373 446 4265 history2 4 3 0 history2 0.1 7.6
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	2 3 0 4 1727 272 333 3415 imit/base >200 imit/base >20 imit/base	<1 0 3 <1 24 2102 358 457 3819 <u>current</u> 4 4 2 2 <u>current</u> 0.1 8.2 23.0	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1 0.1 6.0 18.3	0 <1 1 (1 15 2242 373 446 4265 history2 4 3 0 0 history2 0.1 7.6 22.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	2 3 0 1 4 1727 272 333 3415 imit/base >200 imit/base >20 imit/base >20 imit/base	<1 0 3 (1 24 2102 358 457 3819 Current 4 4 2 Current 0.1 8.2 23.0 Current	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1 0.1 6.0 18.3 history1	0 <1 1 <1 2242 373 446 4265 history2 4 3 0 0 history2 0.1 7.6 22.6 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAC	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	2 3 0 4 1727 272 333 3415 220 imit/base >200 imit/base >20 imit/base	<1 0 3 <1 24 2102 358 457 3819 current 4 4 2 current 0.1 8.2 23.0 current 19.4	0 0 <1 <1 22 1935 321 395 3292 history1 2 <1 0 history1 0.1 6.0 18.3 history1 12.9	0 <1 1 1 2242 373 446 4265 history2 4 3 0 history2 0.1 7.6 22.6 history2 16.9

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	VISUAL		method				history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
and a the second s	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
Nov10/23 Apr2/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
No.	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
_	FLUID PROP		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	13.4	14.4	13.8	14.2
	GRAPHS						
	Iron (ppm)			1	Lead (ppm)		
23 +	Severe				Severe		
Nov10/23 Apr2/24	60				Abnarra		
-	Abnormal				Abnormat		
	20 -				2		
	0						
	Vov30/22	Nov10/23		Apr2/24	Nov30/22	Vov10/23	
1	≊ Aluminum (ppm				≥ Chromium (p	_	
	20 T					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	15				Severe		
	E 10			ud d	3		
۸/10/23				d	Alexander		
Nov10/23					2 - Abnormal		
2	5				1		
2		23				23	
	5 0 0 0 0 0 0 0 0 0 0 0 0	Vov10/23 +		Apr2/24		lov10/23	
90	Copper (ppm)	Nov10/23			Silicon (ppm)	Nov10/23	
	Copper (ppm)	Nov10/23 +			Silicon (ppm)		
	Copper (ppm)	Nav10/23		Ap/2/24	Silicon (ppm)		
	Copper (ppm)	Nov10/23		+b22204y 30	Silicon (ppm)		
	Copper (ppm)	Mov10/23		40 40 30 80 80 80 80 80 80 80 80 80 80 80 80 80	Silicon (ppm)		
	Copper (ppm)	Nov10/23 +		+b22204y 30	Silicon (ppm)		
00 10/10/23	Copper (ppm)			40 40 30 50 10	Severe)	
	Copper (ppm)	Nov10/23		40 40 30 80 80 80 80 80 80 80 80 80 80 80 80 80	Silicon (ppm)	Nev10/23	
	Copper (ppm)	Nov10/23		400 300 bbz/2/dW 100 bbz/2/dW	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm)	Nov10/23		400 300 bbz/2/dW 100 bbz/2/dW	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm)	Nov10/23		400 300 bbz/2/dW 100 bbz/2/dW	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm)	Nov10/23		400 300 bbz/2/dW 100 bbz/2/dW	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm)	Nov10/23		400 300 bbz/2/dW 100 bbz/2/dW	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm)	°C		400 300 400 400 400 400 400 400 400 400	Silicon (ppm)	nov10233	
Account of the second of the s	Copper (ppm)	Nov10/23		400 300 100 4722de 400 400 400 400 400 400 400 400 400 40	Silicon (ppm)	Nev10/23	
Account of the second of the s	Copper (ppm) 30 50 50 50 50 50 50 50 50 50 5	°C EZODIANN EZODIANN 501 Madisco Recei Teste	ived : 24 ed : 25	400 300 100 400 400 400 400 400 400 400 400 4	Silicon (ppm) Severe Abnormal CZOBEVON Base Numbe Base CZOBEVON CZOBE CZOB	r ECOLINAN F ECOLINAN	

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Contact/Location: JOSHUA AVILA - YAAHIG

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