

OIL ANALYSIS REPORT

Sample Rating Trend



Hatchet

Component Natural Gas Engine

PETRO CANADA SENTRON LD 3000 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. 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		PCA0117119	PCA0111980	PCA0111862
Sample Date		Client Info		02 Feb 2024	02 Jan 2024	13 Nov 2023
Machine Age	hrs	Client Info		157983	157238	154383
Oil Age	hrs	Client Info		6586	157238	155871
Oil Changed		Client Info		Not Changd	N/A	N/A
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	6	11	4
Chromium	ppm	ASTM D5185m	>4	0	<1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>9	2	2	1
Lead	ppm	ASTM D5185m	>30	3	2	<1
Copper	ppm	ASTM D5185m	>35	1	2	0
Tin	ppm	ASTM D5185m	>4	<1	<1	<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	5	0	0	0
Barium	ppm	ASTM D5185m	1	0	0	0
Molybdenum	ppm	ASTM D5185m	2	5	10	6
Morybuchum	ppin	AGTIVI DOTODITI	-			
Manganese	ppm		1	<1	0	<1
•				-		<1 10
Manganese	ppm	ASTM D5185m	1	<1	0	
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	1 5	<1 11	0 13	10
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220	<1 11 1469	0 13 1922	10 1425
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298	<1 11 1469 346	0 13 1922 453	10 1425 316
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350	<1 11 1469 346 409	0 13 1922 453 516	10 1425 316 385
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995	<1 11 1469 346 409 2444	0 13 1922 453 516 3135	10 1425 316 385 2407
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 limit/base	<1 11 1469 346 409 2444 current	0 13 1922 453 516 3135 history1	10 1425 316 385 2407 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	1 5 1220 298 350 1995 limit/base >+100 >20	<1 11 1469 346 409 2444 current 2	0 13 1922 453 516 3135 history1 3	10 1425 316 385 2407 history2 2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	1 5 1220 298 350 1995 limit/base >+100 >20	<1 11 1469 346 409 2444 <u>current</u> 2 2 2	0 13 1922 453 516 3135 history1 3 0	10 1425 316 385 2407 history2 2 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	1 5 1220 298 350 1995 limit/base >+100 >20 >20	<1 11 1469 346 409 2444 current 2 2 1 0.5	0 13 1922 453 516 3135 history1 3 0 2	10 1425 316 385 2407 history2 2 0 0
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm TTS ppm ppm ppm %	ASTM D5185m ASTM D5284	1 5 1220 298 350 1995 limit/base >+100 >20 >20 >20 >4.0	<1 11 1469 346 409 2444 current 2 2 1 0.5 current	0 13 1922 453 516 3135 history1 3 0 2 0.1 2 0.1 history1	10 1425 316 385 2407 history2 2 0 0 0 0 0.2 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	ASTM D5185m ASTM D51854	1 5 1220 298 350 1995 limit/base >+100 >20 >20 >20 >4.0	<1 11 1469 346 409 2444 current 2 2 2 1 0.5 current 0.1	0 13 1922 453 516 3135 history1 3 0 2 0.1 2 0.1 history1 0	10 1425 316 385 2407 history2 2 0 0 0 0 0.2 history2 0.1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm TTS ppm ppm ppm %	ASTM D5185m ASTM D5284	1 5 1220 298 350 1995 limit/base >+100 >20 >20 >20 >4.0	<1 11 1469 346 409 2444 current 2 2 1 0.5 current	0 13 1922 453 516 3135 history1 3 0 2 0.1 2 0.1 history1	10 1425 316 385 2407 history2 2 0 0 0 0 0.2 history2

Oxidation

Abs/.1mm *ASTM D7414 >20

3.9

Acid Number (AN) mg KOH/g ASTM D8045 0.86

Base Number (BN) mg KOH/g ASTM D2896

11.3

1.23

2.97

14.4

1.59

3.07

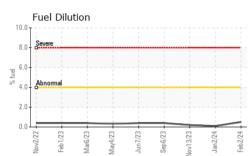
13.7

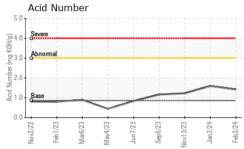
1.42

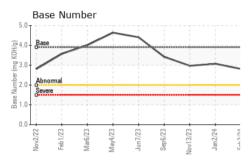
2.81

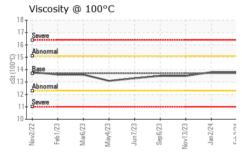


OIL ANALYSIS REPORT









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			VISUAL		method	limit/base	current	history1	history2
			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
3/23	Jan2/24 -	Feb2/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Nov13/23	Jan	Feb	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
			Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG
			Free Water	scalar	*Visual		NEG	NEG	NEG
1			FLUID PROPE	RTIES	method	limit/base	current	history1	history2
			Visc @ 100°C	cSt	ASTM D445	13.7	13.8	13.8	13.5
	_	_	GRAPHS						
			Iron (ppm)				Lead (ppm)		
			100 Severe			6	0 Severe		
Nov13/23	Jan2/24	Feb2/24	00						
Nov	5	Ľ.	Abnormal						-
			40				10		
1			20						
			Nov2/22 - Feb1/23 - Mar6/23 -	Jun7/23 -	Sep6/23 - Vov13/23 - Jan2/24 -	Feb2/24 -	Nov2/22 - Feb 1/23 - Mar6/23 -	May4/23 - Jun7/23 - Sep6/23 -	Nov13/23 - Jan2/24 - Feb2/24 -
-		-	Nov Reb Mar	ημη	Sep Nov1 Jan	Feb	Nov Reb Mar	May Jun Sep	Nov1 Jan
			Aluminum (ppm)				Chromium (p	pm)	
			20				⁸ [
			15 - Severe				6 - Severe		
/23	/24 -	V Cr	E 10 Abnormal			ud d	4 - Abnormal		
Nov13/23	Jan2/24	10/ C 11-3	5				2		
				\sim			0		
			Nov2/22 Feb1/23 Mar6/23	Jun7/23	Sep6/23 . Nov13/23 . Jan2/24 .	Feb 2/24 .	Nov2/22 Feb1/23 Mar6/23	May4/23 Jun7/23 Sep6/23	Nov13/23 Jan2/24 Feb2/24
			No Ma Ma	ηn	Nov	Fe		Ju Se,	Nov Ja
			Copper (ppm)			20	Silicon (ppm)		
-			Severe						
			60			15			
			d 40 - Abnormal			틆 10	0 - Abnormal		-
	*	*	20 -			5	i0 <mark>-</mark>		
Nov13/23	Jan 2/24	الالا والمنا					0		
No	~		Nov2/22 Feb1/23 Mar6/23	Jun7/23	Sep6/23 Vov13/23 Jan2/24	Feb2/24	Nov2/22 Feb1/23 Mar6/23	May4/23 Jun7/23 Sep6/23	Vov13/23 Jan2/24 Feb2/24
					S ON T	LL.			No L
			Viscosity @ 100°C			5.	Base Number		
			Severe			(b) 4. Hoy Bu 3. aquin 2. 88	0 Base		
			C Abnormal			B_3.	0		
			은 14 - Base 경 Abnormal			- and a second s	0 - Severe		-
			12 - Severe			Z 1			
				8	+ +	0.		3 3 3	23
			Nov2/22 Feb1/23 Mar6/23	Jun7/23	Sep 6/23 Nov 13/23 Jan 2/24	Feb2/24	Nov2/22 Feb1/23 Mar6/23	May4/23 Jun7/23 Sep6/23	Vov13/23 Jan2/24 Feb2/24
			- 2	-	Z		_		Z
	borat	-	: WearCheck USA - 50				ENERV	EST OPERATIN	
			: PCA0117119	Rece		Feb 2024		1:	26 AILY ROAD
			: 06092449 : 10885302	Teste Diagr) Feb 2024 Feb 2024 - Se		DANTE, VA US 24237	
			: MOB 2 (Additional Te					Contact: Se	ervice Manager
s sai	mple r	report	contact Customer Serv	ice at 1-8	300-237-1369	9.			-
rt m	athod	e that	are outside of the ISO 1	7025 000	nno of accred	litation			т٠

To discuss this sample repor * - 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

Submitted By: RANDY SMITH

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