

OIL ANALYSIS REPORT

Sample Rating Trend



CATERPILLAR 311 130

Diesel Engine Fluid PETRO CANADA 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.

			MByZUZ3	0012023		
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0822251	WC0822413	
Sample Date		Client Info		09 Oct 2023	17 May 2023	
Machine Age	hrs	Client Info		3326	3067	
Oil Age	hrs	Client Info		259	289	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	10	
-	ppm	ASTM D5185m	>20	5	<1	
	ppm	ASTM D5185m	>4	<1	0	
	ppm	ASTM D5185m		<1	0	
	ppm	ASTM D5185m	>3	0	0	
	ppm	ASTM D5185m		14	2	
	ppm	ASTM D5185m	>40	0	0	
	ppm	ASTM D5185m		1	<1	
		ASTM D5185m	>15	، <1	<1	
	ppm ppm	ASTM D5185m	>10	0	0	
.		ASTM D5185m		0	0	
	ppm	ASTIVI DOTODIII		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		7	8	
Barium	ppm	ASTM D5185m		0	0	
Molybdenum	ppm	ASTM D5185m		88	58	
Manganese	ppm	ASTM D5185m		0	<1	
Magnesium	ppm	ASTM D5185m		1335	958	
Calcium	ppm	ASTM D5185m		1456	1106	
Phosphorus	ppm	ASTM D5185m		1366	1041	
Zinc	ppm	ASTM D5185m		1764	1304	
Sulfur	ppm	ASTM D5185m		5013	3792	
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	18	12	
	ppm	ASTM D5185m		3	1	
	ppm	ASTM D5185m	>20	1	<1	
		method	limit/base	current	history1	history2
INFRA-RED						
	%		>3	0.3	0.3	
Soot %	% Abs/cm	*ASTM D7844	>3 >20	0.3 7.0	0.3	
Soot % Nitration	% Abs/cm Abs/.1mm		>3 >20 >30	7.0	0.3 7.4 18.5	
Soot % Nitration	Abs/cm Abs/.1mm	*ASTM D7844 *ASTM D7624	>20		7.4	
Soot % Nitration Sulfation FLUID DEGRADAT	Abs/cm Abs/.1mm	*ASTM D7844 *ASTM D7624 *ASTM D7415 method	>20 >30 limit/base	7.0 18.3 current	7.4 18.5 history1	
Soot % Nitration Sulfation FLUID DEGRADAT Oxidation	Abs/cm Abs/.1mm FION Abs/.1mm	*ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	>20 >30 limit/base	7.0 18.3 current 14.5	7.4 18.5 history1 14.7	 history2
Soot % Nitration Sulfation FLUID DEGRADAT Oxidation	Abs/cm Abs/.1mm	*ASTM D7844 *ASTM D7624 *ASTM D7415 method	>20 >30 limit/base	7.0 18.3 current	7.4 18.5 history1	

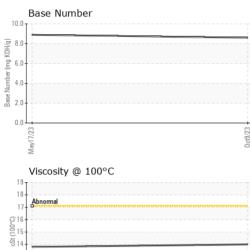


13-Abnormal 12 11 May17/23

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OIL ANALYSIS REPORT

VISUAL



			VISUAL		method	limit/base	current	nistory i	nistory2
			White Metal	scalar	*Visual	NONE	NONE	NONE	
			Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
			Precipitate	scalar	*Visual	NONE	NONE	NONE	
			Silt	scalar	*Visual	NONE	NONE	NONE	
			Debris	scalar	*Visual	NONE	NONE	NONE	
			Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
	/23		Appearance	scalar	*Visual	NORML	NORML	NORML	
	0ct9/23		Odor	scalar	*Visual	NORML	NORML	NORML	
			Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
			Free Water	scalar	*Visual	20.2	NEG	NEG	
		1			visuai		NEG	NEG	
			FLUID PROPER		method	limit/base	current	history1	history2
			Visc @ 100°C	cSt	ASTM D445		14.0	13.8	
			GRAPHS				Load (nnm)		
		250	Iron (ppm)			100	Lead (ppm)		
		200				80	Severe		
	1	e ¹⁵⁰	0-			е ⁶⁰			
		ā 10	0 Abnormal			E 40	Abnormal		
		50	0-			20	-		
		(0			0			
			May17/23			0ct9/23	May17/23		
			—			0			
			Aluminum (ppm)				Chromium (p	om)	
		50	Severe			50	Severe		
		4(40	1		
		udd 20	Abnormal			20	Abnormal		
							1		
		10				10			
		(1/23			0ct9/23	//23		
			May17			Oct9	May17/23		
			Z Copper (ppm)				<pre>Silicon (ppm)</pre>		
		400	⁰ T Severe			80			
		300	Abnonnal			60	-		
	8								
		표 200				특.40	Abnormal		
		100	0-			20			
		(0 L			0	L <u>.</u>		
			May17/23			0ct9/23	May17/23		
			May			õ	May		
			Viscosity @ 100°	С			Base Number		
		20				(0)/HOX (0)/HO	T		
		11 6	⁸ Abnormal			10.8 g	†		
		cSt (100°C)	6-			<u>ட</u> ் 6.0 ங	1		
		نۍ لخ	4 Abnormal			4.0	+		
		13				as 2.0	•		
		10							
			2			0ct9/23	May17/23		
			May17/2			0	May		
			May17/23						
	Laboratory	:	WearCheck USA -			ry, NC 27513			N & SONS IN
JAR	Sample No.	:	WearCheck USA - WC0822251	Receive	d :17	ry, NC 27513 Oct 2023		70	N & SONS IN 06 38TH AVE
TAB	Sample No. Lab Number	:	WearCheck USA - WC0822251 05981814	Receive Diagnos	d :17 ed :19	ry, NC 27513 Oct 2023 Oct 2023		70	N & SONS IN 06 38TH AVE LE BEACH, S
	Sample No.	:	WearCheck USA - WC0822251 05981814 10699109	Received Diagnos Diagnos	d : 17 (ed : 19 (tician : Dor	ry, NC 27513 Oct 2023		70	N & SONS IN 06 38TH AVE LE BEACH, S US 2953
icate L2367 liscuss this a	Sample No. Lab Number Unique Number Test Package sample report,	: : : : : : :	WearCheck USA - WC0822251 05981814	Received Diagnos Diagnos Tests: TE vice at 1-8	d : 17 (ed : 19 (tician : Dor BN) 800-237-1368	ry, NC 27513 Oct 2023 Oct 2023 n Baldridge 9.		70 MYRTI	N & SONS IN 06 38TH AVE LE BEACH, S US 2957 Contact: NE @clbenton.co

Contact/Location: NEIL ? - CLBMYR