

OIL ANALYSIS REPORT

Sample Rating Trend



KENWORTH 28 Component

Diesel Engine

Fluid PETRO CANADA DURON XL SYN BLEND 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

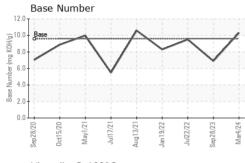
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

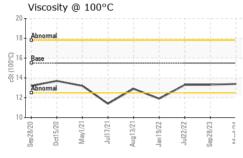
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0105131	PCA0105055	PCA0054215
Sample Date		Client Info		04 Mar 2024	28 Sep 2023	22 Jul 2022
Machine Age	mls	Client Info		625084	609681	545225
Oil Age	mls	Client Info		20000	20000	20000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	29	23	14
Chromium	ppm	ASTM D5185m	>5	3	3	2
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	8	4	2
Lead	ppm	ASTM D5185m	>150	6	4	4
Copper	ppm	ASTM D5185m	>90	2	<1	1
Tin	ppm	ASTM D5185m	>5	2	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	current 0	history1 0	history2 6
	ppm ppm					
Boron		ASTM D5185m	1	0	0	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	1	0 1	0	6 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60	0 1 99	0 0 64	6 0 59
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1	0 1 99 1	0 0 64 <1	6 0 59 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010	0 1 99 1 1500	0 0 64 <1 1006 1121 1023	6 0 59 <1 933
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070	0 1 99 1 1500 1768	0 0 64 <1 1006 1121	6 0 59 <1 933 1106
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	1 1 60 1 1010 1070 1150	0 1 99 1 1500 1768 1560	0 0 64 <1 1006 1121 1023	6 0 59 <1 933 1106 976
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	1 1 60 1 1010 1070 1150 1270	0 1 99 1 1500 1768 1560 1948	0 0 64 <1 1006 1121 1023 1276	6 0 59 <1 933 1106 976 1197
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 ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060	0 1 99 1 1500 1768 1560 1948 4983	0 0 64 <1 1006 1121 1023 1276 2986	6 0 59 <1 933 1106 976 1197 2772
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	1 60 1 1010 1070 1150 1270 2060	0 1 99 1 1500 1768 1560 1948 4983 current	0 0 64 <1 1006 1121 1023 1276 2986 history1	6 0 59 <1 933 1106 976 1197 2772 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 method ASTM D5185m	1 60 1 1010 1070 1150 1270 2060	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19	0 0 64 <1 1006 1121 1023 1276 2986 history1 18	6 0 59 <1 933 1106 976 1197 2772 history2 10
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 ASTM D5185m method ASTM D5185m ASTM D5185m	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4	6 0 59 <1 933 1106 976 1197 2772 history2 10 2
Boron 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	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 >20	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 0
Boron 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	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11 <u>current</u>	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4 4 4	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 0 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	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 limit/base >7.5	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11 <u>current</u> 0.4	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4 4 4 history1 0.3	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 0 history2 0.3
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	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 20 limit/base >7.5 >20	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11 <u>current</u> 0.4 8.8	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4 4 4 0.3 8.8	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 2772 history2 0 0 history2
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 TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	1 1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 20 s20 limit/base >7.5 >20 >30 limit/base	0 1 99 1 1500 1768 1560 1948 4983 Current 19 2 11 Current 0.4 8.8 19.2 Current	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4 4 history1 0.3 8.8 20.1 history1	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 772 history2 0.3 9.4 21.2 history2
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	1 1 60 1 1010 1070 1150 1270 2060 limit/base >35 l >20 limit/base >7.5 >20 >30 limit/base	0 1 99 1 1500 1768 1560 1948 4983 <u>current</u> 19 2 11 <u>current</u> 0.4 8.8 19.2	0 0 64 <1 1006 1121 1023 1276 2986 history1 18 4 4 4 history1 0.3 8.8 20.1	6 0 59 <1 933 1106 976 1197 2772 history2 10 2 7 0 history2 0.3 9.4 21.2



OIL ANALYSIS REPORT

VISUAL





		VISUAL		method	limit/base	current	history1	history2	
\wedge		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
$/ \sim$	/	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	
Aug 13/21 - Jan 19/22 - Jul22/22 -	Sep28/23 - Mar4/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Aug13/21 Jan19/22 Jul22/22	Sep 2 Mar	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		FLUID PROPER	RTIES	method	limit/base	current	history1	history2	
		Visc @ 100°C	cSt	ASTM D445	15.5	13.4	13.3	13.3	
\sim		GRAPHS							
		Iron (ppm)			200	Lead (ppm)			
2 2		³⁰⁰ 250 Severe			300	0			
Aug 13/21 Jan 19/22 Jul22/22	Sep28/23	200			200				
Aı Ja	Se a	E 150			<u></u> 150			i i	
		100-			100				
		50			50				
		Sep28/20 - 0ct15/20 - Jul17/21 - Jul17/21 -	3/21-	Jan 1 9/22 - Jul22/22 - Sep28/23 -	Mar4/24	Sep28/20 - Oct15/20 - May1/21 -	Jul17/21 - Aug13/21 - Jan19/22 -	Jul22/22 - Sep28/23 -	
		Sep28/20 0ct15/20 May1/21 Jul17/21	Aug13/21	Jan 1 9/22 Jul22/22 Sep 28/23	Mar	Sep2 Oct1 May	Jul17/21 Aug13/21 Jan19/22	Jul22/22 Sep28/23	
		Aluminum (ppm)				Chromium (p	pm)		
		40 Severe							
		30			10	i i i			
		툍 20 - Abnormal	1		8 4 6				
					4	Abnormal			
		10-			2	\searrow			
		21+	21-	22	0	20+	21+	22	
		Sep28/20 Oct15/20 May1/21	Aug13/21	Jan 1 9/22 Jul22/22 Sep28/23	Mar4/24	Sep28/20 0ct15/20 May1/21	Jul17/21 Aug13/21 Jan19/22	Jul22/22 Sep28/23	
		Copper (ppm)	4	5 7 00		Silicon (ppm)	4 7	· 0	
		200 T			80				
		Severe			60	Severe			
		E 100 - Abnormal			튭.40	Abnormal		1 1	
		50							
				3 2			2	3 2	
		Sep28/20 - 0ct15/20 - May1/21 -	Aug13/21	Jan 1 9/22 Jul22/22 Sep28/23	Mar4/24	Sep28/20 - 0ct15/20 - May1/21 -	Jul17/21 Aug13/21 Jan19/22	Jul22/22 Sep28/23	
		Viscosity @ 100°C		, ₀					
		18 Abnormal			12.0 (B)H010.0 W B & 0.0 www.see 2.0 B B B B B B B B B B B B B B B B B B B				
		T I I I			E 8.0	House .	\langle / \rangle	\sim	
		5 14			a 6.0		\vee		
		12 Abnormal	\sim		4.0 % 2.0				
		10			0.0				
		Sep28/20 Oct15/20 May1/21	Aug 13/21	Jan 1 9/22 Jul22/22 Sep28/23	Mar4/24	Sep28/20 0ct15/20 May1/21	Jul17/21 Aug13/21 Jan19/22	Jul22/22 Sep28/23	
		Ju Mi Oct	Aug	Ju Sep	M	Sep M.	Ju Aug Jan	Ju Sep	
Laboratory Sample No. Lab Number Unique Number Test Package		: PCA0105131 : <mark>06128834</mark>	Recei [®] Teste	Madison Ave., Cary, NC 27513 Received : 25 Mar 2024 Tested : 28 Mar 2024 Diagnosed : 28 Mar 2024 - Jonathan Heste			B & B HARVESTIN 2842 LADD R MODESTO, C US 9535 Contact: Service Manage		
		contact Customer Servic						ey@gmail.coi	



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