

OIL ANALYSIS REPORT

Sample Rating Trend

VISCOSITY

Machine Id

CR3308

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- 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 oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORM		methou	iiiiii/base	current	matory	Thistory 2
Sample Number		Client Info		WC0809458	WC0761848	WC0564151
Sample Date		Client Info		13 May 2024	26 Nov 2022	19.lun 2021
Machine Age	hre	Client Info		15086	12681	10835
	hre	Client Info		708	522	250
Oil Changed	1110	Client Info		Changed	Changed	Changed
Comple Status					NORMAL	
Sample Status				ATTENTION	NORMAL	NORMAL
CONTAMINATION						history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
			100			
Iron .	ppm	ASTM D5185m	>100	3	2	2
Chromium	ppm	ASTM D5185M	>20	0	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	1	<1
Lead	ppm	ASTM D5185m	>40	<1	<1	1
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Antimony	ppm	ASTM D5185m				<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	mag	ASTM D5185m		0	0	0
o dannann	1010			U	0	0
ADDITIVES	le le	method	limit/base	current	history1	historv2
ADDITIVES	ppm	method	limit/base	current	history1	history2
ADDITIVES Boron Borium	ppm	method ASTM D5185m	limit/base 250	current 95	history1 149	history2 25
ADDITIVES Boron Barium Melyhdonum	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 95 0	history1 149 0	history2 25 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 95 0 6	history1 149 0 5	history2 25 0 55
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	0 current 95 0 6 <1	history1 149 0 5 <1	history2 25 0 55 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	0 current 95 0 6 <1 166	history1 149 0 5 <1 85	history2 25 0 55 <1 841
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	0 current 95 0 6 <1 166 2155	history1 149 0 5 <1 85 2218	history2 25 0 55 <1 841 1169
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150	Current 95 0 6 <1 166 2155 960	history1 149 0 5 <1 85 2218 1017	history2 25 0 55 <1 841 1169 1052
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	limit/base 250 10 100 450 3000 1150 1350	current 95 0 6 <1 166 2155 960 1183	history1 149 0 5 <1 85 2218 1017 1193	history2 25 0 55 <1 841 1169 1052 1280
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	current 95 0 6 <1 166 2155 960 1183 3813	history1 149 0 5 <1 85 2218 1017 1193 4047	history2 25 0 55 <1 841 1169 1052 1280 2882
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 Limit/base	0 95 0 6 <1 166 2155 960 1183 3813 current	bistory1 149 0 5 <1 85 2218 1017 1193 4047 history1	history2 25 0 55 <1 841 1169 1052 1280 2882 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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 ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	0 95 0 6 <1 166 2155 960 1183 3813 current 5	bistory1 149 0 5 <1 85 2218 1017 1193 4047 history1 4	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 3 ppm 4 ppm 4 ppm 2 ppm 4	ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 2	bistory1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 2 current	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 +history1 4 2 5 history1	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm	ASTM D5185m ASTM D5185m	imit/base 250 10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0 0 0	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0 0 0	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0 0 10 0 10 2882 history2 0 0 0 0 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >20 limit/base >3 >20	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 2 current 0.1 9.9	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8	history2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base >3 >20	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0.1 9.9 23.4	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8 24.5	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4 19.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base >3 >20 >30	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0.1 9.9 23.4	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8 24.5	history2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4 19.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base >3 >20 >30 limit/base	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0.1 9.9 23.4	0 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8 24.5 history1	0 history2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4 19.7 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	imit/base 250 10 10 100 450 3000 1150 1350 4250 imit/base >20 >30 imit/base >25	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0.1 9.9 23.4 current	0 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8 24.5 history1 20.6	o history2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4 19.7 history2 15.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7414 ASTM D7414	imit/base 250 10 10 100 450 3000 1150 1350 4250 imit/base >20 imit/base >30 >20 imit/base >25 8.5	0 95 0 6 <1 166 2155 960 1183 3813 current 5 2 current 0.1 9.9 23.4 current 21.4 5.2	history1 149 0 5 <1 85 2218 1017 1193 4047 history1 4 2 5 history1 0.8 10.8 24.5 history1 20.6 8.1	bistory2 25 0 55 <1 841 1169 1052 1280 2882 history2 5 2 history2 0.1 6.4 19.7 history2 15.4 10.3

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Aug29/20

Dec2/20 -

Apr15/21.

OIL ANALYSIS REPORT

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Jun 19/21

	VICONE			initia batec		,	
	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
	Appearance	scalar	*Visual	NORMI	NORMI	NORMI	NORMI
	Odor	scalar	*\/icual	NORMI	NORM	NORMI	NORMI
		Scalar	*\/ioual			NORIVIL	
		Scalar	*\/ioual	>0.2	NEG	NEG	NEG
	Free Water	scalar	visual		NEG	NEG	NEG
	FLUID PROPER	TIES	method	limit/base	e current	history1	history
	Visc @ 100°C	cSt	ASTM D445	10.9	14.4	14.4	14.6
	GRAPHS						
	Ferrous Alloys						
	iron						
	8 - nickel						
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	\sim viscosity @ 100°	_ 			Base Number	-	
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	Abnormal		1	é	2.0		
	8				0.0		
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To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

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Certificate L2367

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