

OIL ANALYSIS REPORT

Sample Rating Trend



660 Component Gasoline Engine Fluid GASOLINE ENGINE OIL SAE 5W30 (11 QTS)

DIAGNOSIS

Machine Id

Recommendation

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material.

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.

SAMIFLE INFURIN	ATION	methou	iimii/base	current	Thistory I	Thistoryz
Sample Number		Client Info		RW0005211	RW0004307	RW0004780
Sample Date		Client Info		02 Jul 2024	11 Jan 2024	14 Sep 2023
Machine Age	mls	Client Info		42701	33453	28117
Oil Age	mls	Client Info		9248	5300	7599
Oil Changed	iiiio	Client Info		Changed	Changed	
Sample Status						
Sample Status				ADITOTIMAL	NOTIMAL	NOTIVIAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	<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
Iron	ppm	ASTM D5185m	>150	25	14	16
Chromium	ppm	ASTM D5185m	>20	2	1	1
Nickel	ppm	ASTM D5185m	>5	<1	<1	2
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>40	5	4	4
Lead	maa	ASTM D5185m	>50	0	0	0
Copper	mag	ASTM D5185m	>155	<1	0	1
Tin	maa	ASTM D5185m	>10	0	<1	0
Vanadium	mag	ASTM D5185m		0	0	0
Cadmium	nom	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 16	history1 21	history2 27
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 75 5	current 16 0	history1 21 0	history2 27 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 75 5 100	current 16 0 73	history1 21 0 74	history2 27 0 68
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 75 5 100	current 16 0 73 <1	history1 21 0 74 <1	history2 27 0 68 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 75 5 100 12	current 16 0 73 <1 516	history1 21 0 74 <1 500	history2 27 0 68 1 458
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 75 5 100 12 2100	current 16 0 73 <1 516 1197	history1 21 0 74 <1 500 1005	history2 27 0 68 1 458 977
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 75 5 100 12 2100 650	current 16 0 73 <1 516 1197 716	history1 21 0 74 <1 500 1005 706	history2 27 0 68 1 458 977 645
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 75 5 100 12 2100 650 850	current 16 0 73 <1 516 1197 716 852	history1 21 0 74 <1 500 1005 706 780	history2 27 0 68 1 458 977 645 816
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 75 100 12 2100 650 850 2500	current 16 0 73 <1 516 1197 716 852 2953	history1 21 0 74 <1 500 1005 706 780 2469	history2 27 0 68 1 458 977 645 816 2598
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500	current 16 0 73 <1 516 1197 716 852 2953 current	history1 21 0 74 <1 500 1005 706 780 2469 history1	history2 27 0 68 1 458 977 645 816 2598 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 3 ppm 4 ppm 3 ppm 4	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500 limit/base >30	current 16 0 73 <1 516 1197 716 852 2953 current	history1 21 0 74 <1 500 1005 706 780 2469 history1 26	history2 27 0 68 1 458 977 645 816 2598 history2 29
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500 limit/base >30 >400	current 16 0 73 <1 516 1197 716 852 2953 current ▲ 44 24	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15	history2 27 0 68 1 458 977 645 816 2598 history2 29 32
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500 2500 limit/base >30 >400	Current 16 0 73 <1 516 1197 716 852 2953 current ▲ 44 24 1	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 4 ppm 1 ppm 1 ppm 4	method ASTM D5185m	limit/base 75 5 100 12 2100 650 650 850 2500 limit/base >30 >400 >20	current 16 0 73 <1 516 1197 716 852 2953 current 44 24 1 current	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm 1 ppm 2 ppm 2 ppm 2 ppm 4 ppm 4	method ASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500 2500 limit/base >30 >400 >20	current 16 0 73 <1 516 1197 716 852 2953 current 44 24 1 current 0.1	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1 0	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 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	method ASTM D5185m	limit/base 75 5 100 12 2100 650 850 2500 2500 limit/base >30 >400 >20 limit/base	Current 16 0 73 <1 516 1197 716 852 2953 current 44 24 1 current 0.1 17.6	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 0 14.2	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5
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 75 5 100 12 2100 650 850 2500 limit/base >30 >400 >20 limit/base >20 20	Current 16 0 73 <1 516 1197 716 852 2953 current 44 24 1 current 0.1 17.6 31.4	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1 0 14.2 24.6	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5 31.6
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	limit/base 75 5 100 12 2100 650 850 2500 2500 limit/base >30 >20 limit/base >20 >20 >30	Current 16 0 73 <1 516 1197 716 852 2953 current 44 24 1 current 0.1 17.6 31.4	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 0 14.2 24.6 history1	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5 31.6 history2
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 D78444 *ASTM D7415 method *ASTM D7414	limit/base 75 5 100 12 2100 650 850 2500 limit/base >30 >400 >20 limit/base >20 >30 santit/base	Current 16 0 73 <1 516 1197 716 852 2953 current ▲ 44 24 1 current 0.1 17.6 31.4 current	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1 0 14.2 24.6 history1	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5 31.6 history2 26.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation Base Number (RN)	ppm ppm % Abs/1mm <th>method ASTM D5185m ASTM D7844 *ASTM D7414 ASTM D74144</th> <th>limit/base 75 5 100 12 2100 650 850 2500 limit/base >30 >400 >20 limit/base >20 s30 s20 limit/base >20</th> <th>Current 16 0 73 <1 516 1197 716 852 2953 current ▲ 44 24 1 current 0.1 17.6 31.4 current 30.7 3 67</th> <th>history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1 0 14.2 24.6 history1</th> <th>history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5 31.6 history2 26.7</th>	method ASTM D5185m ASTM D7844 *ASTM D7414 ASTM D74144	limit/base 75 5 100 12 2100 650 850 2500 limit/base >30 >400 >20 limit/base >20 s30 s20 limit/base >20	Current 16 0 73 <1 516 1197 716 852 2953 current ▲ 44 24 1 current 0.1 17.6 31.4 current 30.7 3 67	history1 21 0 74 <1 500 1005 706 780 2469 history1 26 15 <1 history1 0 14.2 24.6 history1	history2 27 0 68 1 458 977 645 816 2598 history2 29 32 2 history2 0 15.5 31.6 history2 26.7



OIL ANALYSIS REPORT









VISUAL		method	limit/base	e currer	nt 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	
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	NEG	
FLUID PROPERTI	ES	method	limit/base	e currer	nt history1	history2	
Visc @ 100°C	cSt	ASTM D445	10.9	10.3	9.2	10.1	
GRAPHS							
Iron (ppm)				Lead (pp	m)		
400 - Severe				150 - Severe			
g ³⁰⁰			E.	100			
200 Abnormal			d	Abnormal			
100-				50 - 0			
72 +	/23	/24	/24	23 L	23	/24	-
Mar9 Jul 4 Mar13	Sep 14	Jan11	Jul2	Mar9	Mar13 Sep14	Jan 11. Jul2	
Aluminum (ppm)				Chromiu	m (ppm)		
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60				40 4			
Abnormal				20 Abnormal			
20				10-			
0				0			_
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≥ Copper (ppm)	\$	ت ت		_ ▲ Silicon (p	≥ ∽ pm)	ت ا	
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50				20			
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9 Abnormal				0.0			_
Abnormal		sc*	-	(N) 14		<i>i</i>	
40000000000000000000000000000000000000	- + 14/23	n11/24 -	Jul2/24	lar9/22	ar13/2	n11/2 Jul2/2	
Abnowna 	Sep14/23	Jan11/24 -	Jul2/24	Mar9/22	Mar13/2 Sep14/2	Jan11/2	
* WearCheck USA - 501	Madiso	n Ave., Cary	⁴ کرکرامر NC 2751:	Mar9/22	Zifi Law CITY OF FARM		5
23 10 4 Abnormal 20 (SPE) 20 (SPE	Madiso Recei	n Ave., Cary ved : 17	, NC 27513 Jul 2024	3	2761 1 days CITY OF FARM 2724	IINGTON HILLS	5
* WearCheck USA - 501 : RW0005211 : 06239645	Madiso Recei Teste	+5/11/ump n Ave., Cary ved : 17 d : 18	, NC 27513 Jul 2024 Jul 2024	3	CITY OF FARM 2724 FARMING	IINGTON HILLS 5 HALSTED RD GTON HILLS, M	3)

Unique Numbe Test Package : MOB 2 (Additional Tests: TBN) Certificate 12367

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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