

OIL ANALYSIS REPORT

Area [W02008458] WOLVO ECR355 310021

Diesel Engine

Fluid DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

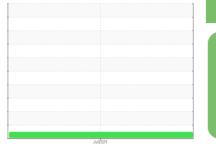
All component wear rates are normal.

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 Rating Trend



NORMAL

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		ML0002421		
Sample Date		Client Info		11 Jul 2024		
Machine Age	hrs	Client Info		5994		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATIO	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	13		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>2	<1		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>2	0		
Aluminum	ppm	ASTM D5185m	>25	4		
Lead	ppm	ASTM D5185m	>40	0		
Copper	ppm	ASTM D5185m	>330	1		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
				•		
ADDITIVES	1- 1-	method	limit/base	current	history1	history2
		method		current	history1	history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m	limit/base 250 10	-		
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current 30		
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250	current 30 0 44		
Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current 30 0		
Boron Barium Molybdenum	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	current 30 0 44 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current 30 0 44 <1 581		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	methodASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185mASTM D5185m	250 10 100 450 3000	Current 30 0 44 <1 581 1652	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	Current 30 0 44 <1 581 1652 1035	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	Current 30 0 44 <1 581 1652 1035 1183	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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	250 10 100 450 3000 1150 1350 4250	Current 30 0 44 <1 581 1652 1035 1183 3467		
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	Current 30 0 44 <1 581 1652 1035 1183 3467 Current	 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	current 30 0 44 <1 581 1652 1035 1183 3467 current 8	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3 2	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base	current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3 2 current 0.1	 history1 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3	Current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3 2 current	 history1 history1 	 history2 history2
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	250 10 100 450 3000 1150 1350 4250 i mit/base >25 >158 >20 i mit/base >3 >20	current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3 2 current 0.1 7.0	 history1 history1 	 history2 history2
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	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3 >20	Current 30 0 44 <1 581 1652 1035 1183 3467 current 8 3 2 current 0.1 7.0 22.0	 history1 history1 history1	 history2 history2 history2



14.0

Base Number (mg KOH/g) 0.0 0.0 0.0 0.0 Base Abnorma

2.0 0.0 Jul11/24

18 т 17-Abnormal

16 (100-01) 15 14 Base

13 Abnormal

12 11 Jul11/24

OIL ANALYSIS REPORT

FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1	history2
Oxidation	White Metal	scalar *	Visual	NONE	NONE		
Promotion Nitration	Yellow Metal		Visual	NONE	NONE		
5 +							
0 +	Precipitate		Visual	NONE	NONE		
5	Silt		Visual	NONE	NONE		
0-	Debris		Visual	NONE	NONE		
5	Sand/Dirt	scalar *	Visual	NONE	NONE		
Juli 1/24	Appearance	scalar *	Visual	NORML	NORML		
lut thut	Odor	scalar *	Visual	NORML	NORML		
Page Number	Emulsified Water	scalar *	Visual	>0.2	NEG		
Base Number	Free Water		Visual		NEG		
0 - Abnormal	FLUID PROPERT		method	limit/base	current	history1	history2
0 - Base	Visc @ 100°C		STM D445		13.3		
Abnormal	GRAPHS						
0							
0	Ferrous Alloys						
75 	iron						
Jul 1/24	12 - execution chromium						
¬	10						
Viscosity @ 100°C	8- 4						
	G 6 7						
7- Abnormal	4						
6	2						
5- Base							
4	0						
3- Abnormal	Jul11/24			Jul11/24			
2		_		-			
24	Non-ferrous Metals	5					
Jul 1/24	copper						
-2	8 - testeresting lead						
	6						
	4						
	2						
	24	*****	***********	724			
	Jull 1,			Juli 1,			
	→ Viscosity @ 100°C			,			
	VISCOSITY @ 100°C				Base Number		
	17			14.0	Abnorm=1		
	17 Abnormal			12.0	Abnormal		
	16			Ho 10.0	Pres		
	0 15 Base			(0)10.0 HOX B 8.0 Mom B 6.0 Mom B 6.0 B 88 B 4.0	Base		
	00 15 - Base 37 14			a 6.0-	1		
	12				Abnormal		
	Abnormal			1			
	12-			2.0	1		
	11				+		
	Jul11/24			Jul11/24	Jul11/24		Jul11/24
	Ju			J	l,		η
Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report, * - Denotes test methods that a	: 11126079 : CONST (Additional Te contact Customer Service	Receive Tested Diagnos ests: TBN) ce at 1-800	ed : 15 : 17 sed : 17)-237-1369	5 Jul 2024 7 Jul 2024 Jul 2024 - Don E 9.	Baldridge	MA Contact: MIK JGH@MCCLUNG	ARRY ROAD NASSAS, VA US 20110 E MAYHUGH
Statements of conformity to sp					ule (JCGM 106.		703)393-7844

Contact/Location: MIKE MAYHUGH - VOLVO0002