**WEAR CONTAMINATION FLUID CONDITION**  **ABNORMAL ABNORMAL ATTENTION** 



[728449]

## VOLVO EC480 314300

Fluid							
VOLVO ULTRA DIESEL ENGIN	E OIL 15W4	o VDS	S-3 ( G	iAL)			
RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.	Sample Number		Client Info		VCP439825	VCP395899	VCP418985
	Sample Date		Client Info		20 Jun 2024	05 Jun 2023	08 May 2023
	Machine Age	hrs	Client Info		6215	5483	5393
	Oil Age	hrs	Client Info		0	100	0
	Filter Age	hrs	Client Info		0	0	0
	Oil Changed		Client Info		Changed	Not Changd	Changed
	Filter Changed		Client Info		Changed	N/A	Changed
	Sample Status				ABNORMAL	ATTENTION	NORMAL
WEAR	Iron	ppm	ASTM D5185m	>100	11	3	10
	Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
The copper level is abnormal. All other component wear rates are normal.	Nickel	ppm	ASTM D5185m	>10	6	<1	<1
	Titanium	ppm	ASTM D5185m		0	0	0
	Silver	ppm	ASTM D5185m	>2	0	0	0
	Aluminum	ppm	ASTM D5185m	>10	2	<1	0
	Lead	ppm	ASTM D5185m	>20	1	<1	<1
	Copper	ppm	ASTM D5185m	>15	<b>4</b> 39	<1	1
	Tin	ppm	ASTM D5185m	>10	2	<1	<1
	Vanadium	ppm	ASTM D5185m		0	<1	0
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
CONTAINING TION						_	
CONTAMINATION	Silicon	ppm	ASTM D5185m		<u>^</u> 25	5	6
Fuel content negligible. Elemental level of silicon (Si) above normal.	Potassium	ppm	ASTM D5185m		4	2	<1
	Fuel	%	ASTM D3524		0.2	<1.0	1.6
	Water		WC Method	>0.1	NEG	NEG	NEG
	Glycol	21	WC Method	0	NEG	NEG	NEG
	Soot %	%	*ASTM D7844	>:3	0.7		
					0.1	0.1	0.1
	Nitration	Abs/cm	*ASTM D7624	>20	9.7	5.8	10.8
	Nitration Sulfation	Abs/cm Abs/.1mm	*ASTM D7624 *ASTM D7415	>20 >30	9.7 22.5	5.8 22.1	10.8 22.8
	Nitration Sulfation Silt	Abs/cm Abs/.1mm scalar	*ASTM D7624 *ASTM D7415 *Visual	>20 >30 NONE	9.7 22.5 NONE	5.8 22.1 NONE	10.8 22.8 NONE
	Nitration Sulfation Silt Debris	Abs/cm Abs/.1mm scalar scalar	*ASTM D7624 *ASTM D7415 *Visual *Visual	>20 >30 NONE NONE	9.7 22.5 NONE NONE	5.8 22.1 NONE NONE	10.8 22.8 NONE NONE
	Nitration Sulfation Silt Debris Sand/Dirt	Abs/cm Abs/.1mm scalar scalar scalar	*ASTM D7624 *ASTM D7415 *Visual *Visual *Visual	>20 >30 NONE NONE NONE	9.7 22.5 NONE NONE NONE	5.8 22.1 NONE NONE NONE	10.8 22.8 NONE NONE
	Nitration Sulfation Silt Debris Sand/Dirt Appearance	Abs/cm Abs/.1mm scalar scalar scalar scalar	*ASTM D7624  *ASTM D7415  *Visual  *Visual  *Visual  *Visual	>20 >30 NONE NONE NONE NORML	9.7 22.5 NONE NONE NONE NORML	5.8 22.1 NONE NONE NONE NORML	10.8 22.8 NONE NONE NONE NONE
	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar	*ASTM D7624  *ASTM D7415  *Visual  *Visual  *Visual  *Visual  *Visual  *Visual	>20 >30 NONE NONE NONE NORML	9.7 22.5 NONE NONE NONE NORML	5.8 22.1 NONE NONE NONE NORML NORML	10.8 22.8 NONE NONE NONE NORML
	Nitration Sulfation Silt Debris Sand/Dirt Appearance	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar	*ASTM D7624  *ASTM D7415  *Visual  *Visual  *Visual  *Visual	>20 >30 NONE NONE NONE NORML	9.7 22.5 NONE NONE NONE NORML	5.8 22.1 NONE NONE NONE NORML	10.8 22.8 NONE NONE
FLUID CONDITION	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar	*ASTM D7624  *ASTM D7415  *Visual  *Visual  *Visual  *Visual  *Visual  *Visual	>20 >30 NONE NONE NONE NORML	9.7 22.5 NONE NONE NONE NORML	5.8 22.1 NONE NONE NONE NORML NORML	10.8 22.8 NONE NONE NONE NORML
FLUID CONDITION  The cil vice spitt is leaven then power! The DN requit indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar	*ASTM D7624 *ASTM D7415 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	>20 >30 NONE NONE NONE NORML NORML >0.1	9.7 22.5 NONE NONE NONE NORML NORML NEG	5.8 22.1 NONE NONE NONE NORML NORML NEG	10.8 22.8 NONE NONE NONE NORHL NORML
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water Sodium	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar scalar	*ASTM D7624 *ASTM D7415 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *ASTM D5185m	>20 >30 NONE NONE NONE NORML NORML >0.1	9.7 22.5 NONE NONE NONE NORML NORML NEG	5.8 22.1 NONE NONE NONE NORML NORML NEG	10.8 22.8 NONE NONE NONE NORML NORML NEG
	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm	*ASTM D7624 *ASTM D76415 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NORE NORML NORML >0.1	9.7 22.5 NONE NONE NONE NORML NORML NEG	5.8 22.1 NONE NONE NONE NORML NORML NEG 2 48	10.8 22.8 NONE NONE NONE NORML NORML NEG 3
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm	*ASTM D7624 *ASTM D7624 *ASTM D7415 *Visual *Visual *Visual *Visual *Visual *Visual *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NORE NORML NORML >0.1	9.7 22.5 NONE NONE NORML NORML NEG  1 11 0 44 1	5.8 22.1 NONE NONE NONE NORML NORML NEG 2 48 0	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54 <1
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese Magnesium	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm	*ASTM D7624 *ASTM D7415 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NORE NORML NORML >0.1 2.5 0.0 0.7 0.0 256	9.7 22.5 NONE NONE NORML NORML NEG  1 11 0 44 1 487	5.8 22.1 NONE NONE NORML NORML NEG 2 48 0 43 <1 541	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	*ASTM D7624 *ASTM D7415 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NORE NORML NORML >0.1 2.5 0.0 0.7 0.0 256 2057	9.7 22.5 NONE NONE NORML NORML NEG 1 11 0 44 1 487 1777	5.8 22.1 NONE NONE NORML NORML NEG 2 48 0 43 <1 541 1699	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54 <1 583 1543
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese Magnesium	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	*ASTM D7624 *ASTM D76145 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Tisual *Visual *ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NONE NORML NORML >0.1 2.5 0.0 0.7 0.0 256 2057 935	9.7 22.5 NONE NONE NORML NORML NEG  1 11 0 44 1 487	5.8 22.1 NONE NONE NORML NORML NEG 2 48 0 43 <1 541	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54 <1 583 1543 907
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm ppm	*ASTM D7624 *ASTM D7614 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Tisual *Visual *ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NONE NORML NORML >0.1 2.5 0.0 0.7 0.0 256 2057 935 1223	9.7 22.5 NONE NONE NORML NORML NEG 1 11 0 44 1 487 1777 949 1234	5.8 22.1 NONE NONE NONE NORML NORML NEG 2 48 0 43 <1 541 1699 982 1214	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54 <1 583 1543 907 1127
The oil viscosity is lower than normal. The BN result indicates that	Nitration Sulfation Silt Debris Sand/Dirt Appearance Odor Emulsified Water  Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	Abs/cm Abs/.1mm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	*ASTM D7624 *ASTM D76145 *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Tisual *Visual *ASTM D5185m ASTM D5185m	>20 >30 NONE NONE NONE NORML >0.1 2.5 0.0 0.7 0.0 256 2057 935 1223 4079	9.7 22.5 NONE NONE NORML NORML NEG 1 11 0 44 1 487 1777 949	5.8 22.1 NONE NONE NONE NORML NORML NEG 2 48 0 43 <1 541 1699 982	10.8 22.8 NONE NONE NONE NORML NORML NEG 3 10 0 54 <1 583 1543 907

Base Number (BN) mg KOH/g ASTM D2896 10

Visc @ 100°C cSt

ASTM D445 15.0

9.8

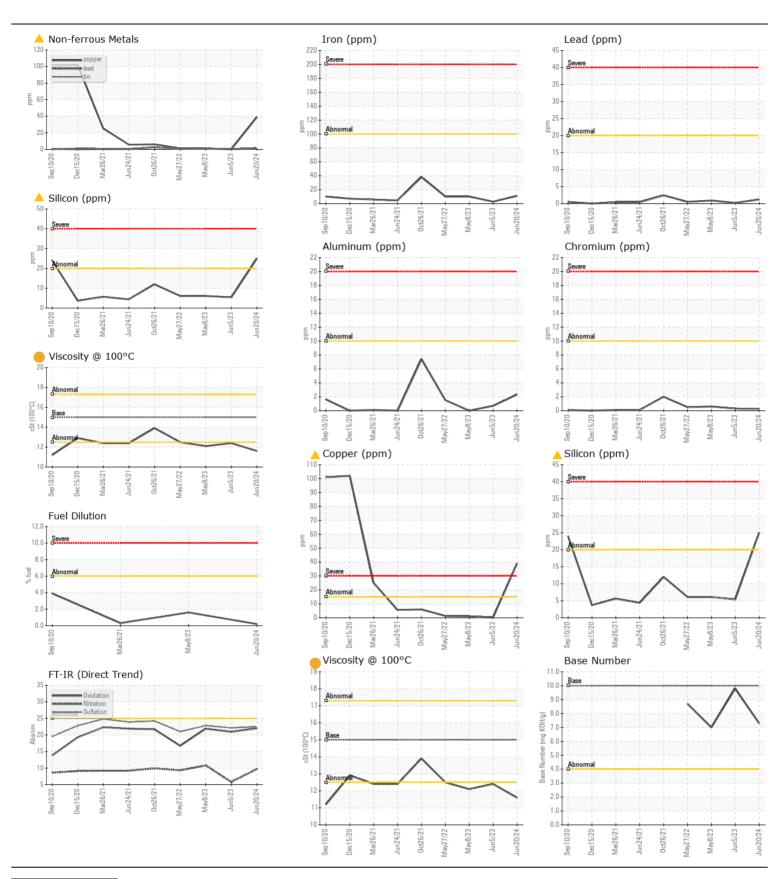
12.4

7.3

11.6

7.0

12.1





Certificate L2367

Laboratory

Sample No. Lab Number

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : VCP439825 : 06220748

Unique Number : 11098945

Received **Tested** Diagnosed

: 26 Jun 2024 : 29 Jun 2024

: 29 Jun 2024 - Don Baldridge Test Package: MOB 1 (Additional Tests: FuelDilution, PercentFuel, TBN)

MORNING STAR FARM RD CANAL POINT, FL US 33430 Contact: Service Manager

**FIVE STONES MINE** 

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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