

OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend



VOLVO 4902 Component Diesel Engine

NAPA Motor Oil 15W40 (--- QTS)

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Area

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

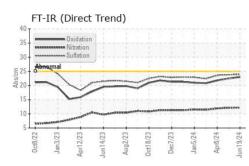
Fluid Condition

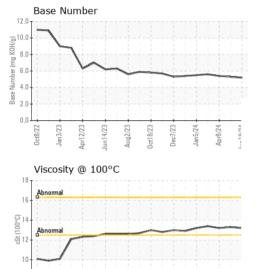
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM		method	limit/base	current	nistory i	nistory2
Sample Number		Client Info		WC0935450	WC0935446	WC0899586
Sample Date		Client Info		19 Jun 2024	09 May 2024	08 Apr 2024
Machine Age	hrs	Client Info		0	2810	2655
Oil Age	hrs	Client Info		0	2379	2224
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<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	>100	112	108	92
Chromium	ppm	ASTM D5185m	>20	2	2	1
Nickel	ppm	ASTM D5185m	>2	7	7	6
Titanium	ppm	ASTM D5185m	_	<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m		7	6	6
Lead	ppm	ASTM D5185m		5	5	5
Copper	ppm	ASTM D5185m		148	178	154
Tin	ppm	ASTM D5185m	>15	4	5	5
Vanadium	ppm	ASTM D5185m	210	<1	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
Oddinium	ррш	AOTIN DOTOSIII		Ū		0
						histow.0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	limit/base	19	21	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	19 0	21 0	21 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35	21 0 39	21 0 37
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4	21 0 39 3	21 0 37 3
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4 759	21 0 39 3 692	21 0 37 3 738
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4 759 1508	21 0 39 3 692 1485	21 0 37 3 738 1477
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4 759 1508 834	21 0 39 3 692 1485 852	21 0 37 3 738 1477 810
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4 759 1508 834 989	21 0 39 3 692 1485 852 967	21 0 37 3 738 1477 810 974
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		19 0 35 4 759 1508 834	21 0 39 3 692 1485 852	21 0 37 3 738 1477 810
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	limit/base	19 0 35 4 759 1508 834 989	21 0 39 3 692 1485 852 967	21 0 37 3 738 1477 810 974
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	limit/base	19 0 35 4 759 1508 834 989 2880	21 0 39 3 692 1485 852 967 2655	21 0 37 3 738 1477 810 974 2974
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	19 0 35 4 759 1508 834 989 2880 current	21 0 39 3 692 1485 852 967 2655 history1	21 0 37 3 738 1477 810 974 2974 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	limit/base >25	19 0 35 4 759 1508 834 989 2880 <u>current</u> 14	21 0 39 3 692 1485 852 967 2655 history1 16	21 0 37 3 738 1477 810 974 2974 history2 15
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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 >25	19 0 35 4 759 1508 834 989 2880 <u>current</u> 14 6	21 0 39 3 692 1485 852 967 2655 history1 16 4	21 0 37 3 738 1477 810 974 2974 2974 history2 15 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	19 0 35 4 759 1508 834 989 2880 current 14 6 18	21 0 39 3 692 1485 852 967 2655 history1 16 4 17	21 0 37 3 738 1477 810 974 2974 history2 15 5 15
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	19 0 35 4 759 1508 834 989 2880 current 14 6 18 28 current	21 0 39 3 692 1485 852 967 2655 history1 16 4 17 17 history1	21 0 37 3 738 1477 810 974 2974 bistory2 15 5 15 15 bistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	19 0 35 4 759 1508 834 989 2880 <u>current</u> 14 6 18 <u>current</u>	21 0 39 3 692 1485 852 967 2655 history1 16 4 17 17 history1 0.9	21 0 37 3 738 1477 810 974 2974 history2 15 5 15 15 history2 0.8
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 >25 >20 limit/base >3 >20	19 0 35 4 759 1508 834 989 2880 current 14 6 18 current 1 1 1 2.2	21 0 39 3 692 1485 852 967 2655 history1 16 4 17 history1 0.9 12.1	21 0 37 3 738 1477 810 974 2974 history2 15 5 15 5 15 15 history2 0.8 11.9
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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	limit/base >25 >20 limit/base >3 >20 >30 >30	19 0 35 4 759 1508 834 989 2880 Current 14 6 18 Current 1 1 12.2 23.9 Current	21 0 39 3 692 1485 852 967 2655 history1 16 4 17 history1 0.9 12.1 23.8 history1	21 0 37 3 738 1477 810 974 2974 2974 history2 15 5 15 5 15 history2 0.8 11.9 23.6 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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	Imit/base >25 >20 Imit/base >3 >20 >3 >20 >30	19 0 35 4 759 1508 834 989 2880 <u>current</u> 14 6 18 <u>current</u> 1 1 12.2 23.9	21 0 39 3 692 1485 852 967 2655 history1 16 4 17 history1 0.9 12.1 23.8	21 0 37 3 738 1477 810 974 2974 bistory2 15 5 15 5 15 bistory2 0.8 11.9 23.6



OIL ANALYSIS REPORT





Det18/23

pr8/24

Laboratory

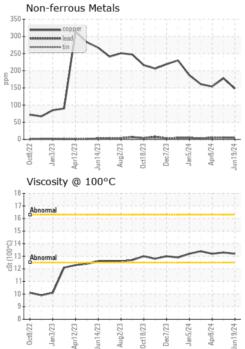
Sample No.

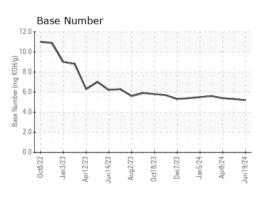
: WC0935450

an5/24

VISUAL		method	limit/base	current	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 PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		13.2	13.3	13.2
CRAPHS						

Ferrous Alloys 120 100 80 E 60 40 20 Π. 0ct8/22 Dec7/23 Jun 14/23 Jan3/23 Apr12/23 Aug2/23 0ct18/23 an5/24 or8//24





LIBERTY DISPOSAL

6401 S EASTERN AVE OKLAHOMA CITY, OK US 73149 Contact: M Rutherford M.Rutherford@ldi89.com T: 2) F:



0ct8/22

Apr12/23

Jun 14/23 Aua 2/23

Jan 3/73

 Lab Number : 06215377
 Tested : 21 Jun 2024
 O

 Unique Number : 11088241
 Diagnosed : 21 Jun 2024 - Sean Felton
 O

 Certificate 12367
 Test Package : FLEET
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 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 M.F

 * - 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)

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

Received

: 20 Jun 2024

Report Id: SEAOKL [WUSCAR] 06215377 (Generated: 06/21/2024 16:05:18) Rev: 1

Contact/Location: M Rutherford - SEAOKL