



VOLVO

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
VOLVO L90H 625095
Component
Diesel Engine
Fluid
VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (--- GAL)

RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VCP437486	VCP372841	VCP337596
Sample Date		Client Info		08 Apr 2024	18 Jul 2023	08 Dec 2022
Machine Age	hrs	Client Info		5831	5559	4694
Oil Age	hrs	Client Info		0	500	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	49	17	13
Chromium	ppm	ASTM D5185m	>20	2	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	22	4	2
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	2	1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is an abnormal amount of solids and carbon present in the oil.

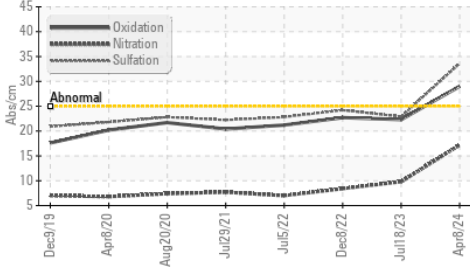
Silicon	ppm	ASTM D5185m	>25	9	6	6
Potassium	ppm	ASTM D5185m	>20	1	0	1
Fuel	%	ASTM D3524	>6.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	▲ 4.8	0.7	0.4
Nitration	Abs/cm	*ASTM D7624	>20	17.2	9.8	8.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	33.6	22.9	24.2
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

FLUID CONDITION

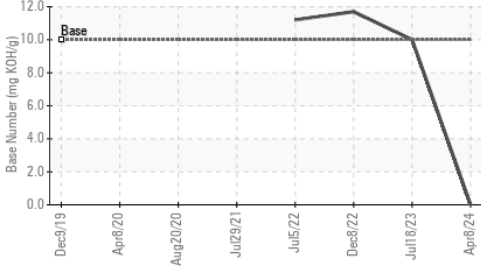
The oil viscosity is higher than normal. The BN level is low.

Sodium	ppm	ASTM D5185m		4	3	0
Boron	ppm	ASTM D5185m	2.5	14	35	35
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	0.7	45	47	44
Manganese	ppm	ASTM D5185m	0.0	<1	<1	<1
Magnesium	ppm	ASTM D5185m	256	552	566	513
Calcium	ppm	ASTM D5185m	2057	1755	1927	1800
Phosphorus	ppm	ASTM D5185m	935	902	1008	1010
Zinc	ppm	ASTM D5185m	1223	1094	1228	1185
Sulfur	ppm	ASTM D5185m	4079	2965	3472	3530
Oxidation	Abs/.1mm	*ASTM D7414	>25	29.0	22.3	22.7
Base Number (BN)	mg KOH/g	ASTM D2896	10	▲ 0.0	10.0	11.7
Visc @ 100°C	cSt	ASTM D445	15.0	▲ 16.4	13.5	13.7

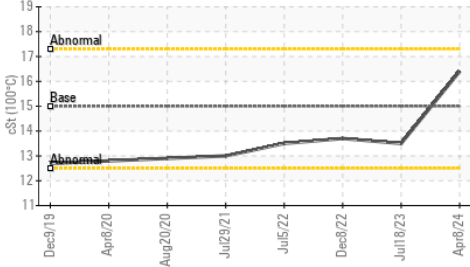
▲ FT-IR (Direct Trend)



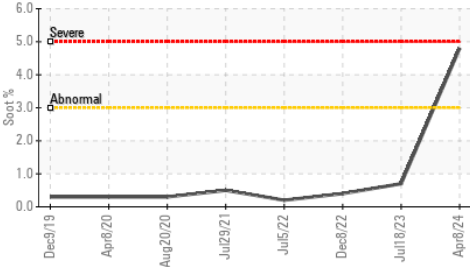
▲ Base Number



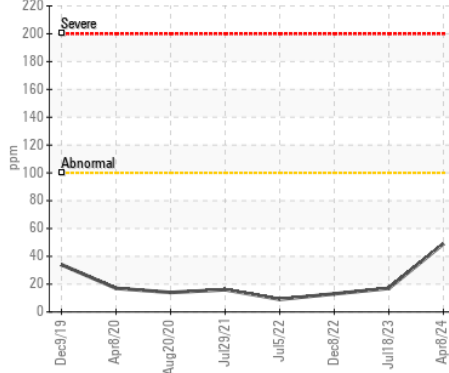
▲ Viscosity @ 100°C



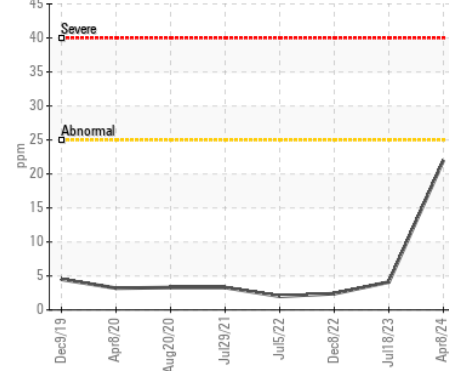
▲ Soot %



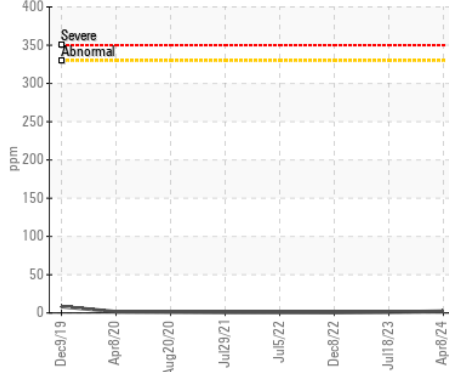
Iron (ppm)



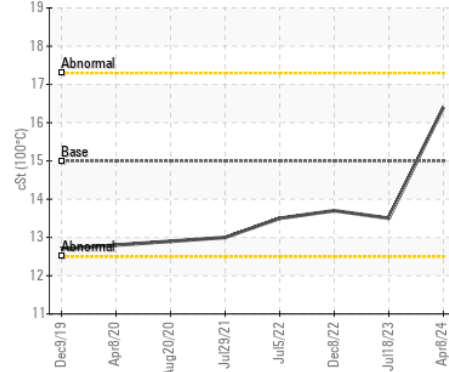
Aluminum (ppm)



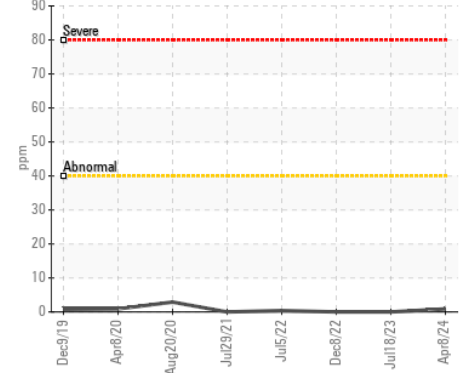
Copper (ppm)



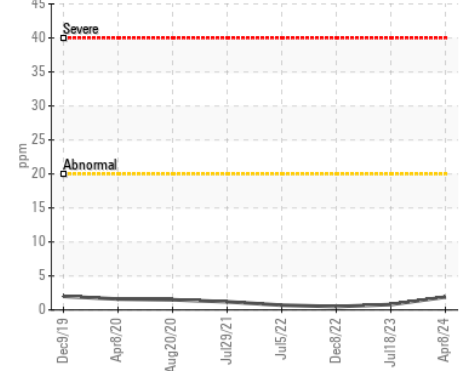
▲ Viscosity @ 100°C



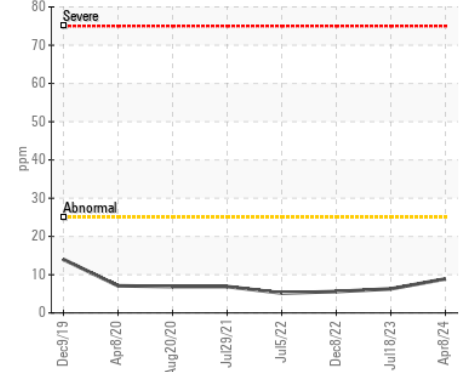
Lead (ppm)



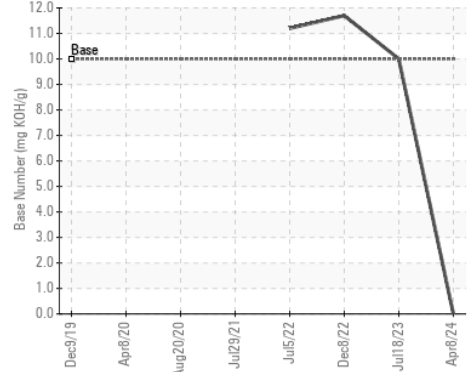
Chromium (ppm)



Silicon (ppm)



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : VCP437486
 Lab Number : 06151583
 Unique Number : 10981661
 Test Package : MOB 1 (Additional Tests: FuelDilution, TBN)

VCES- VOLVO CONSTRUCTION EQUIPMENT
 12345 MAPLEVIEW STREET
 LAKESIDE, CA
 US 92040
 Contact: Mark Stewart
 mark.stewart@vcesvolvo.com

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)

T: X:
 F: X: