



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
VOLVO EC220E 314010
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		ML0000241	ML0000263	VCP320360
Sample Date		Client Info		09 Apr 2024	08 Apr 2024	09 Sep 2021
Machine Age	hrs	Client Info		5008	3913	1950
Oil Age	hrs	Client Info		500	200	0
Filter Age	hrs	Client Info		500	200	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	14	29	20
Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
Nickel	ppm	ASTM D5185m	>10	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>10	4	5	2
Lead	ppm	ASTM D5185m	>20	1	<1	<1
Copper	ppm	ASTM D5185m	>15	1	2	1
Tin	ppm	ASTM D5185m	>10	<1	<1	<1
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 no indication of any contamination in the oil.

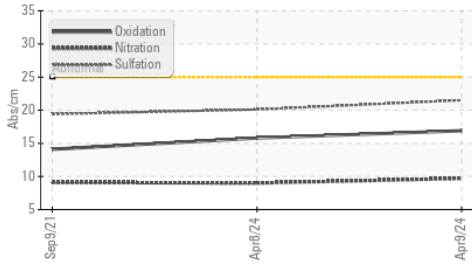
Silicon	ppm	ASTM D5185m	>20	5	11	5
Potassium	ppm	ASTM D5185m	>20	2	2	3
Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.3	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.7	9.0	9.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.5	20.1	19.4
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	>0.1	NEG	NEG	NEG

FLUID CONDITION

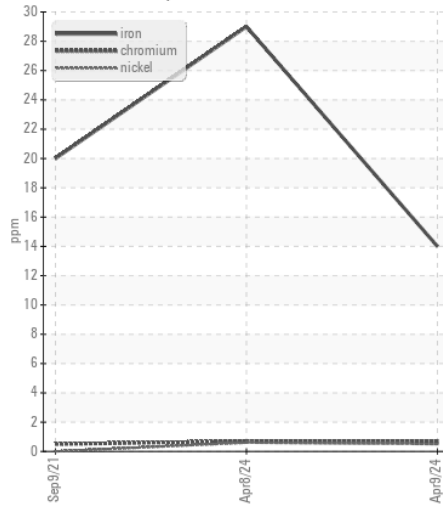
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>216	1	1	1
Boron	ppm	ASTM D5185m	250	41	160	58
Barium	ppm	ASTM D5185m	10	5	<1	0
Molybdenum	ppm	ASTM D5185m	100	72	79	2
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	732	480	794
Calcium	ppm	ASTM D5185m	3000	1815	1845	1563
Phosphorus	ppm	ASTM D5185m	1150	1188	1068	832
Zinc	ppm	ASTM D5185m	1350	1466	1351	914
Sulfur	ppm	ASTM D5185m	4250	4352	4121	3117
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	15.8	14.1
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	7.0	6.5	---
Visc @ 100°C	cSt	ASTM D445	14.4	13.4	12.9	13.92

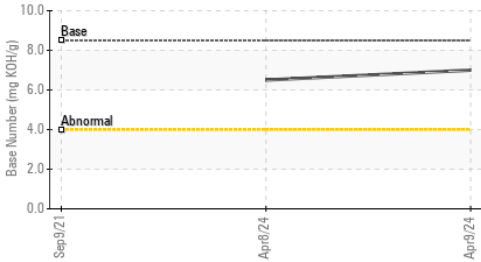
FT-IR (Direct Trend)



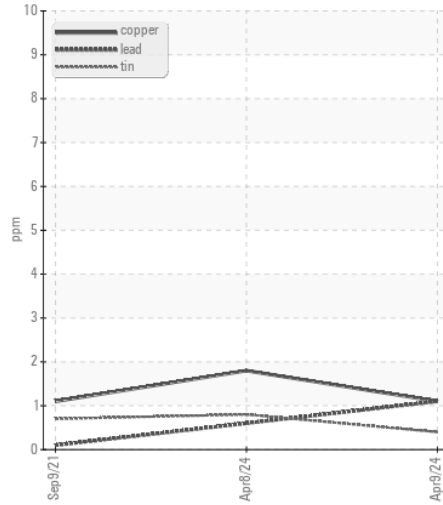
Ferrous Alloys



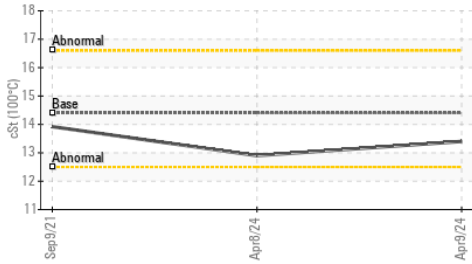
Base Number



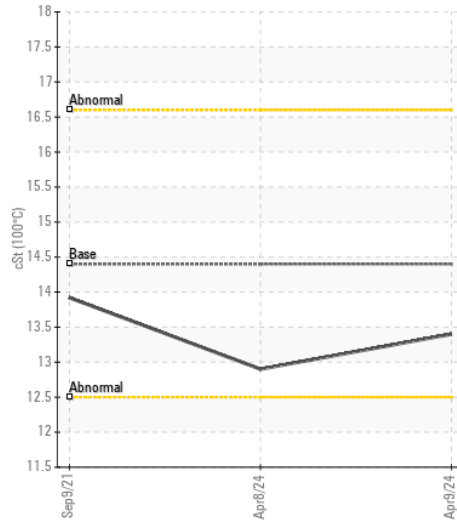
Non-ferrous Metals



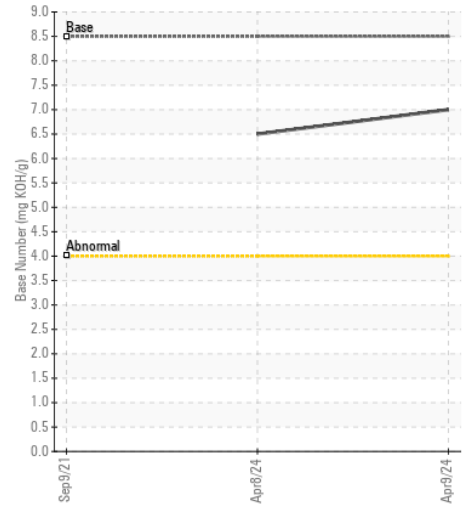
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : ML0000241 Received : 11 Apr 2024
 Lab Number : 06145720 Tested : 12 Apr 2024
 Unique Number : 10970528 Diagnosed : 14 Apr 2024 - Don Baldrige
 Test Package : CONST (Additional Tests: TBN)

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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)