



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

NADINE URCIUOLI [LUKAS SIMMONS]

Machine Id

VOLVO PENTA 2300038104

Component

Center Diesel Engine

Fluid

VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (1 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA051582	---	---
Sample Date		Client Info		05 Feb 2024	---	---
Machine Age	hrs	Client Info		915	---	---
Oil Age	hrs	Client Info		917	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				SEVERE	---	---

WEAR

Gear wear is indicated.

Iron	ppm	ASTM D5185m	>80	▲ 242	---	---
Chromium	ppm	ASTM D5185m	>6	◆ 58	---	---
Nickel	ppm	ASTM D5185m	>2	0	---	---
Titanium	ppm	ASTM D5185m	>2	<1	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>20	▲ 36	---	---
Lead	ppm	ASTM D5185m	>95	10	---	---
Copper	ppm	ASTM D5185m	>85	9	---	---
Tin	ppm	ASTM D5185m	>9	1	---	---
Vanadium	ppm	ASTM D5185m		<1	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

There is no indication of any contamination in the oil.

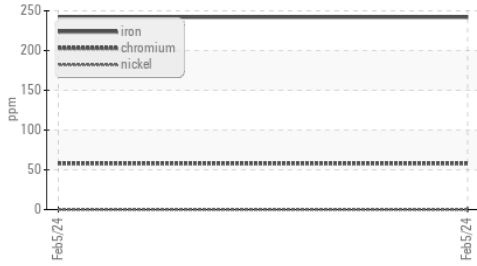
Silicon	ppm	ASTM D5185m	>25	14	---	---
Potassium	ppm	ASTM D5185m	>20	<1	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water		WC Method	>0.1	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.1	---	---
Nitration	Abs/cm	*ASTM D7624	>20	9.5	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.1	NEG	---	---

FLUID CONDITION

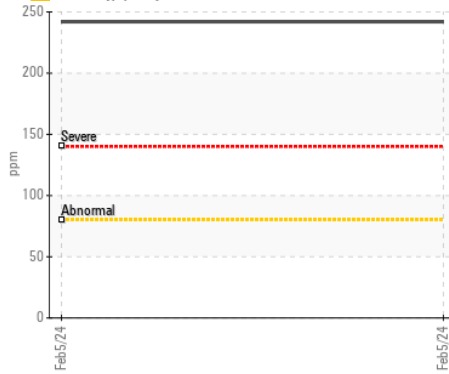
The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185m		7	---	---
Boron	ppm	ASTM D5185m	2.5	304	---	---
Barium	ppm	ASTM D5185m	0.0	0	---	---
Molybdenum	ppm	ASTM D5185m	0.7	50	---	---
Manganese	ppm	ASTM D5185m	0.0	2	---	---
Magnesium	ppm	ASTM D5185m	256	249	---	---
Calcium	ppm	ASTM D5185m	2057	2236	---	---
Phosphorus	ppm	ASTM D5185m	935	1121	---	---
Zinc	ppm	ASTM D5185m	1223	1280	---	---
Sulfur	ppm	ASTM D5185m	4079	4152	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.8	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	10	7.8	---	---
Visc @ 100°C	cSt	ASTM D445	15.0	12.5	---	---

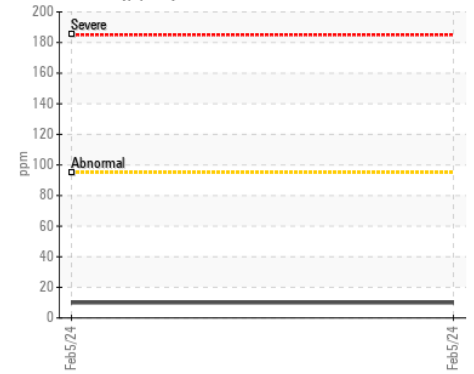
Ferrous Alloys



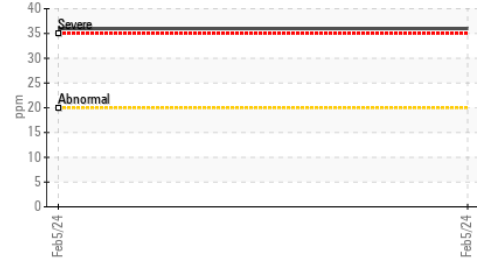
Iron (ppm)



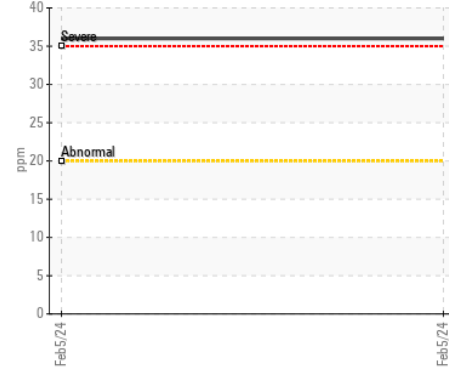
Lead (ppm)



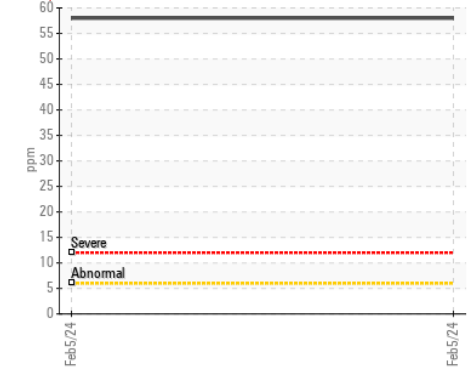
Aluminum (ppm)



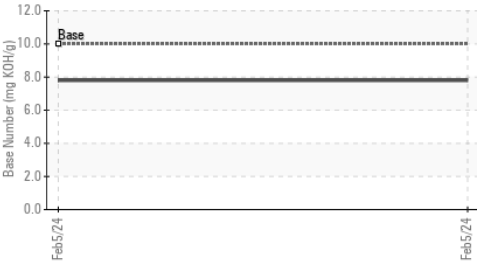
Aluminum (ppm)



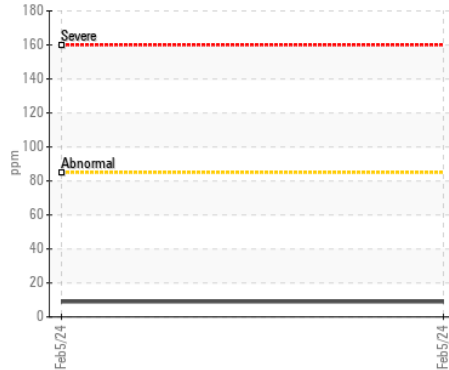
Chromium (ppm)



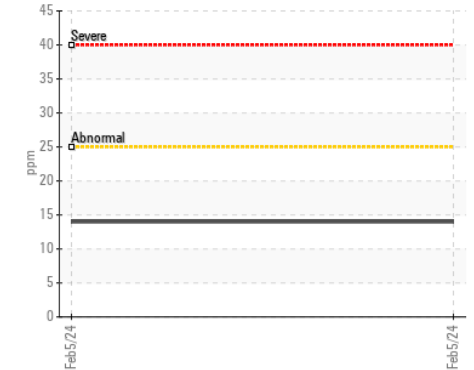
Base Number



Copper (ppm)



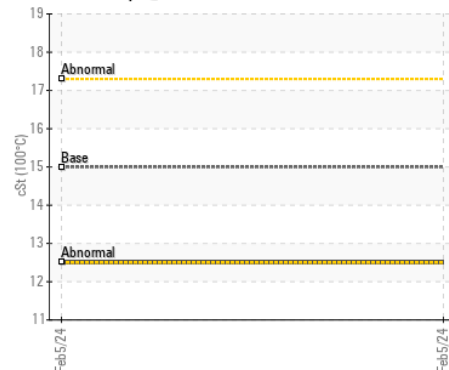
Silicon (ppm)



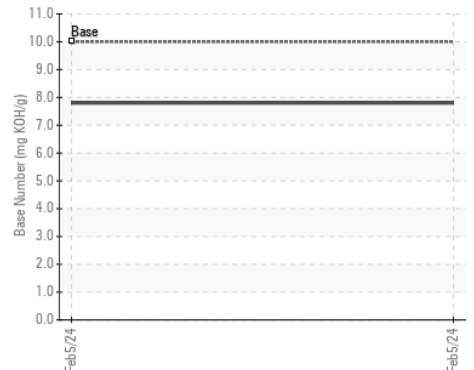
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA051582 **Received** : 13 Feb 2024
Lab Number : 06086918 **Tested** : 13 Feb 2024
Unique Number : 10874363 **Diagnosed** : 14 Feb 2024 - Jonathan Hester
Test Package : MOB 1 (Additional Tests: TBN)

Helmuts Marine Service
 619 Canal Street
 SAN RAFAEL, CA
 US 94901-3545

Contact: NADINE URUIOLI
 SERVICE@HELMUTSMARINE.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