

# OIL ANALYSIS REPORT



## SCARLETE RINER VOLVO PENTA 1013897351 (S/N 101397351) - PORT DIESEL ENGINE

**Sample No:** VPA051763  
**Oil Type:** VOLVO VDS-4.5 Premium Motor Oil 15W40

### SAMPLE INFORMATION

Sample Number	<b>VPA051763</b>	VPA034045	VPA038790	---
Sample Date	<b>23 Jul 2023</b>	22 Feb 2023	05 Aug 2022	---
Machine Hours	<b>1623</b>	1032	605	---
Oil Hours	<b>589</b>	1032	605	---
Oil Changed	<b>Not Changd</b>	Changed	Not Changd	---
Sample Status	<b>ABNORMAL</b>	ABNORMAL	ABNORMAL	---

**NEWT MARINE**  
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### OIL CONDITION

Visc @ 100°C	cSt	<b>▲ 11.3</b>	▲ 11.2	▲ 11.6	---
Base Number (BN)	mg KOH/g	<b>■ 7.8</b>	■ 7.8	■ 9.8	---
Oxidation (PA)	%	<b>77</b>	76	77	---

### CONTAMINATION

Soot %	%	<b>■ 0.2</b>	■ 0.2	■ 0.2	---
Nitration (PA)	%	<b>78</b>	76	72	---
Sulfation (PA)	%	<b>60</b>	61	63	---
Glycol	%	<b>NEG</b>	NEG	NEG	---
Fuel	%	<b>▲ 7.4</b>	▲ 6.3	▲ 6.3	---
Silicon	ppm	<b>■ 20</b>	■ 18	■ 20	---
Sodium	ppm	<b>■ 3</b>	■ 0	■ 5	---
Potassium	ppm	<b>■ 28</b>	■ 31	■ 29	---

### WEAR METALS

Iron	ppm	<b>■ 20</b>	■ 19	■ 15	---
Copper	ppm	<b>▲ 234</b>	▲ 288	■ 7	---
Lead	ppm	<b>■ 4</b>	■ 1	■ 2	---
Tin	ppm	<b>■ 2</b>	■ 2	■ 3	---
Aluminum	ppm	<b>■ 12</b>	■ 12	■ 12	---
Chromium	ppm	<b>■ &lt;1</b>	■ <1	■ <1	---
Molybdenum	ppm	<b>■ 54</b>	■ 55	■ 51	---
Nickel	ppm	<b>■ 0</b>	■ 0	■ <1	---
Titanium	ppm	<b>■ &lt;1</b>	■ 0	■ 0	---
Silver	ppm	<b>■ 0</b>	■ 0	■ 0	---
Manganese	ppm	<b>■ 2</b>	■ 2	■ 1	---
Vanadium	ppm	<b>&lt;1</b>	0	<1	---

### ADDITIVES

Calcium	ppm	<b>■ 1227</b>	■ 1230	■ 1159	---
Magnesium	ppm	<b>874</b>	787	■ 748	---
Zinc	ppm	<b>■ 1225</b>	■ 1141	■ 1115	---
Phosphorus	ppm	<b>■ 925</b>	■ 946	■ 886	---
Barium	ppm	<b>■ 0</b>	■ 0	■ <1	---
Boron	ppm	<b>■ 7</b>	■ 11	■ 18	---

### Diagnosis

We advise that you check the fuel injection system. Resample at the next service interval to monitor. The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

**Depot:** VP99298099  
**Unique No:** 10593022  
**Signed:** Don Baldrige  
**Report Date:** 11 Aug 2023

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**VOLVO  
PENTA**

## GRAPHS

