

# OIL ANALYSIS REPORT



## DAN KRAEMER 2006004798 - PORT DIESEL ENGINE

**Sample No:** VPA051709  
**Oil Type:** VOLVO VDS-4.5 Premium Motor Oil 15W40

### SAMPLE INFORMATION

Sample Number	<b>VPA051709</b>	VPA038167	VPA032959	---
Sample Date	<b>10 Sep 2023</b>	18 Sep 2021	19 Sep 2020	---
Machine Hours	<b>667</b>	633	613	---
Oil Hours	<b>15</b>	30	40	---
Oil Changed	<b>Changed</b>	Changed	Changed	---
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	---

### INTERSTATE POWER SYSTEMS

2901 E 78TH ST  
 MINNEAPOLIS, MN  
 US 55425  
 Contact: BRADY GARBRECHT  
 brady.garbrecht@istate.com  
 T:  
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### OIL CONDITION

Visc @ 100°C	cSt	<b>14.1</b>	13.8	13.4	---
Base Number (BN)	mg KOH/g	<b>9.6</b>	---	---	---
Oxidation (PA)	%	<b>53</b>	56	60	---

### CONTAMINATION

Soot %	%	<b>0.1</b>	0.1	0.1	---
Nitration (PA)	%	<b>44</b>	49	51	---
Sulfation (PA)	%	<b>50</b>	52	54	---
Glycol	%	<b>NEG</b>	NEG	NEG	---
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	---
Silicon	ppm	<b>6</b>	5	4	---
Sodium	ppm	<b>1</b>	6	2	---
Potassium	ppm	<b>2</b>	4	9	---

### Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

### WEAR METALS

Iron	ppm	<b>3</b>	4	7	---
Copper	ppm	<b>&lt;1</b>	1	2	---
Lead	ppm	<b>&lt;1</b>	<1	4	---
Tin	ppm	<b>&lt;1</b>	0	0	---
Aluminum	ppm	<b>0</b>	1	1	---
Chromium	ppm	<b>&lt;1</b>	<1	<1	---
Molybdenum	ppm	<b>60</b>	59	59	---
Nickel	ppm	<b>&lt;1</b>	<1	<1	---
Titanium	ppm	<b>0</b>	0	<1	---
Silver	ppm	<b>&lt;1</b>	0	0	---
Manganese	ppm	<b>&lt;1</b>	<1	<1	---
Vanadium	ppm	<b>0</b>	0	0	---

### ADDITIVES

Calcium	ppm	<b>1103</b>	1106	1044	---
Magnesium	ppm	<b>992</b>	1038	987	---
Zinc	ppm	<b>1375</b>	1166	1108	---
Phosphorus	ppm	<b>1151</b>	1032	1064	---
Barium	ppm	<b>0</b>	0	0	---
Boron	ppm	<b>2</b>	4	2	---

**Depot:** VP1103105  
**Unique No:** 10646588  
**Signed:** Jonathan Hester  
**Report Date:** 18 Sep 2023

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# VOLVO PENTA

## GRAPHS

