

# OIL ANALYSIS REPORT



## 69016441371633 - STARBOARD DIESEL ENGINE

**Sample No:** VPA058943  
**Oil Type:** MOBIL DELVAC 1 5W40

### SAMPLE INFORMATION

Sample Number	<b>VPA058943</b>	VPA056999	VPA033205	VPA040653
Sample Date	<b>25 Mar 2024</b>	20 Jul 2023	06 Apr 2022	10 Oct 2021
Machine Hours	<b>0</b>	1971	1816	0
Oil Hours	<b>0</b>	0	50	0
Oil Changed	<b>Not Chngd</b>	N/A	N/A	N/A
Sample Status	<b>NORMAL</b>	ABNORMAL	NORMAL	NORMAL

**ADVANCED DIESEL**  
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### OIL CONDITION

Visc @ 100°C	cSt	<b>15.4</b>	13.8	13.9	13.7
Base Number (BN)	mg KOH/g	<b>7.7</b>	6.3	8.1	---
Oxidation (PA)	%	<b>83</b>	170	170	179

### CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.1</b>	0.3	0.1	0.1
Nitration (PA)	%	<b>50</b>	71	63	61
Sulfation (PA)	%	<b>63</b>	100	103	104
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>6</b>	6	8	3
Sodium	ppm	<b>3</b>	<1	1	<1
Potassium	ppm	<b>4</b>	0	0	<1

### 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>16</b>	26	10	10
Copper	ppm	<b>8</b>	▲ 23	10	7
Lead	ppm	<b>&lt;1</b>	0	1	<1
Tin	ppm	<b>&lt;1</b>	0	<1	<1
Aluminum	ppm	<b>2</b>	2	2	4
Chromium	ppm	<b>&lt;1</b>	2	1	<1
Molybdenum	ppm	<b>8</b>	51	48	50
Nickel	ppm	<b>&lt;1</b>	<1	<1	<1
Titanium	ppm	<b>&lt;1</b>	0	<1	<1
Silver	ppm	<b>0</b>	0	0	<1
Manganese	ppm	<b>&lt;1</b>	0	<1	<1
Vanadium	ppm	<b>0</b>	0	0	0

### ADDITIVES

Calcium	ppm	<b>1904</b>	1109	1142	1067
Magnesium	ppm	<b>226</b>	959	728	899
Zinc	ppm	<b>1183</b>	1426	1105	1256
Phosphorus	ppm	<b>1027</b>	1152	932	1077
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>173</b>	107	112	119

**Depot:** VPADVNAP  
**Unique No:** 10943207  
**Signed:** Don Baldrige  
**Report Date:** 28 Mar 2024

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# VOLVO PENTA

## GRAPHS

