

OIL ANALYSIS REPORT

**VOLVO
PENTA**

69016441371633 - STARBOARD DIESEL ENGINE

Sample No: VPA056999
Oil Type: MOBIL DELVAC 1 5W40

SAMPLE INFORMATION

Sample Number	VPA056999	VPA033205	VPA040653	---
Sample Date	20 Jul 2023	06 Apr 2022	10 Oct 2021	---
Machine Hours	1971	1816	0	---
Oil Hours	0	50	0	---
Oil Changed	N/A	N/A	N/A	---
Sample Status	ABNORMAL	NORMAL	NORMAL	---

ADVANCED DIESEL

1029 INDUSTRIAL BLVD, UNIT 2
NAPLES, FL
US 34104
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OIL CONDITION

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

CONTAMINATION

Soot %	%	0.3	0.1	0.1	---
Nitration (PA)	%	71	63	61	---
Sulfation (PA)	%	100	103	104	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	<1.0	<1.0	<1.0	---
Silicon	ppm	6	8	3	---
Sodium	ppm	<1	1	<1	---
Potassium	ppm	0	0	<1	---

WEAR METALS

Iron	ppm	26	10	10	---
Copper	ppm	23	10	7	---
Lead	ppm	0	1	<1	---
Tin	ppm	0	<1	<1	---
Aluminum	ppm	2	2	4	---
Chromium	ppm	2	1	<1	---
Molybdenum	ppm	51	48	50	---
Nickel	ppm	<1	<1	<1	---
Titanium	ppm	0	<1	<1	---
Silver	ppm	0	0	<1	---
Manganese	ppm	0	<1	<1	---
Vanadium	ppm	0	0	0	---

ADDITIVES

Calcium	ppm	1109	1142	1067	---
Magnesium	ppm	959	728	899	---
Zinc	ppm	1426	1105	1256	---
Phosphorus	ppm	1152	932	1077	---
Barium	ppm	0	0	0	---
Boron	ppm	107	112	119	---

Diagnosis

No corrective action is recommended at this time. 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 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.

Depot: VPADVNAP
Unique No: 10574158
Signed: Sean Felton
Report Date: 28 Jul 2023

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GRAPHS

