

OIL ANALYSIS REPORT

**VOLVO
PENTA**

NADINE URUIOLI ROBERT MIROS VOLVO PENTA A870291 - STARBOARD DIESEL ENGINE

Sample No: VPA051571

Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3

SAMPLE INFORMATION

Sample Number	VPA051571	VPA034579	---	---
Sample Date	18 Jan 2024	09 Jul 2020	---	---
Machine Hours	316	123	---	---
Oil Hours	316	123	---	---
Oil Changed	Changed	Not Changd	---	---
Sample Status	NORMAL	NORMAL	---	---

Helmut's Marine Service

619 Canal Street
SAN RAFAEL, CA
US 94901-3545
Contact: NADINE URUIOLI
SERVICE@HELMUTSMARINE.COM

T: x:

F: x:

OIL CONDITION

Visc @ 100°C	cSt	13.1	13.9	---	---
Base Number (BN)	mg KOH/g	9.9	---	---	---
Oxidation (PA)	%	57	55	---	---

CONTAMINATION

Water	%	NEG	NEG	---	---
Soot %	%	0.2	0.4	---	---
Nitration (PA)	%	49	58	---	---
Sulfation (PA)	%	52	51	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	<1.0	---	---
Silicon	ppm	6	20	---	---
Sodium	ppm	0	4	---	---
Potassium	ppm	0	2	---	---

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 acceptable for the time in service.

WEAR METALS

Iron	ppm	10	20	---	---
Copper	ppm	6	14	---	---
Lead	ppm	1	4	---	---
Tin	ppm	<1	0	---	---
Aluminum	ppm	4	20	---	---
Chromium	ppm	<1	2	---	---
Molybdenum	ppm	59	48	---	---
Nickel	ppm	2	2	---	---
Titanium	ppm	0	<1	---	---
Silver	ppm	0	0	---	---
Manganese	ppm	<1	1	---	---
Vanadium	ppm	0	0	---	---

ADDITIVES

Calcium	ppm	1028	2139	---	---
Magnesium	ppm	946	581	---	---
Zinc	ppm	1220	1220	---	---
Phosphorus	ppm	1011	1088	---	---
Barium	ppm	0	<1	---	---
Boron	ppm	5	54	---	---

Depot: VP152741

Unique No: 10846861

Signed: Don Baldrige

Report Date: 26 Jan 2024

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GRAPHS

