

OIL ANALYSIS REPORT

VOLVO PENTA

2013874696 - STARBOARD DIESEL ENGINE

Sample No: VPA036629

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

SAMPLE INFORMATION

Sample Number	VPA036629	VPA033423	VPA031409	---
Sample Date	03 Nov 2023	15 Mar 2022	16 Jul 2021	---
Machine Hours	160	121	95	---
Oil Hours	0	0	0	---
Oil Changed	N/A	N/A	N/A	---
Sample Status	NORMAL	NORMAL	NORMAL	---

OIL CONDITION

Visc @ 100°C	cSt	█ 14.03	█ 13.4	█ 12.6	---
Base Number (BN)	mg KOH/g	█ 8.7	█ 6.6	---	---
Oxidation (PA)	%	52	65	42	---

CONTAMINATION

Soot %	%	█ 0.1	█ 0.7	█ 0.2	---
Nitration (PA)	%	37	94	41	---
Sulfation (PA)	%	53	67	44	---
Glycol	%	NEG	NEG	NEG	---
Fuel	%	<1.0	<1.0	<1.0	---
Silicon	ppm	█ 8	█ 10	█ 23	---
Sodium	ppm	█ 0	█ 1	█ 1	---
Potassium	ppm	█ 3	█ 4	█ 14	---

WEAR METALS

Iron	ppm	█ 5	█ 9	█ 25	---
Copper	ppm	█ 8	█ 7	█ 27	---
Lead	ppm	█ <1	█ <1	█ 2	---
Tin	ppm	█ 0	█ <1	█ 2	---
Aluminum	ppm	█ 2	█ 2	█ 5	---
Chromium	ppm	█ <1	█ <1	█ <1	---
Molybdenum	ppm	█ 74	█ 54	█ 44	---
Nickel	ppm	█ <1	█ <1	█ <1	---
Titanium	ppm	█ <1	█ 0	█ <1	---
Silver	ppm	█ 0	█ <1	█ <1	---
Manganese	ppm	█ <1	█ <1	█ 2	---
Vanadium	ppm	█ 0	█ 0	█ 0	---

ADDITIVES

Calcium	ppm	█ 1276	█ 1080	█ 1167	---
Magnesium	ppm	█ 441	█ 987	█ 954	---
Zinc	ppm	█ 1146	█ 1281	█ 1369	---
Phosphorus	ppm	█ 1032	█ 1101	█ 1186	---
Barium	ppm	█ 5	█ 0	█ 0	---
Boron	ppm	█ 361	█ 6	█ 9	---

ADVANCED DIESEL

1029 INDUSTRIAL BLVD, UNIT 2
NAPLES, FL
US 34104
Contact: KEITH SPICER
keith_advanceddiesel@yahoo.com
T: (239)580-8731
F:

Diagnosis

No corrective action is recommended at this time. 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 condition of the oil is acceptable for the time in service.

Depot: VPADVNAP
Unique No: 10729245
Signed: Doug Bogart
Report Date: 07 Nov 2023

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GRAPHS

