

OIL ANALYSIS REPORT

**VOLVO
PENTA**

RICHARD STILES 501888 VOLVO PENTA A406398 - PORT DIESEL ENGINE

Sample No: VPA051938

Oil Type: CHEVRON DELO 400 MULTIGRADE 15W40

SAMPLE INFORMATION

Sample Number	VPA051938	VPA048039	VPA043522	VPA034323
Sample Date	31 Oct 2023	07 Nov 2022	20 Dec 2021	29 May 2021
Machine Hours	1078	980	877	789
Oil Hours	98	0	0	33
Oil Changed	Changed	Changed	Changed	Not Changd
Sample Status	NORMAL	NORMAL	NORMAL	ATTENTION

North Harbor Diesel Inc
720 30Th Street
ANACORTES, WA
US 98221
Contact: ROBBIN MURDOCK
robbin@northharbordiesel.com
T: (360)299-1904
F:

OIL CONDITION

Visc @ 100°C	cSt	14.0	13.8	14.1	14.3
Base Number (BN)	mg KOH/g	8.7	10.4	9.1	---
Oxidation (PA)	%	52	66	52	52

CONTAMINATION

Soot %	%	0.2	0.2	0.2	0.1
Nitration (PA)	%	64	62	67	62
Sulfation (PA)	%	51	65	51	51
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	3	5	5	4
Sodium	ppm	3	6	6	13
Potassium	ppm	3	3	2	4

WEAR METALS

Iron	ppm	11	16	11	16
Copper	ppm	4	7	3	3
Lead	ppm	1	1	1	1
Tin	ppm	0	<1	0	<1
Aluminum	ppm	7	15	10	▲ 30
Chromium	ppm	<1	1	<1	2
Molybdenum	ppm	13	95	<1	<1
Nickel	ppm	<1	4	<1	1
Titanium	ppm	0	0	<1	<1
Silver	ppm	0	<1	<1	<1
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	0	<1	<1	<1

ADDITIVES

Calcium	ppm	1340	1496	1343	1244
Magnesium	ppm	698	666	632	684
Zinc	ppm	725	874	804	792
Phosphorus	ppm	566	703	693	666
Barium	ppm	0	0	0	0
Boron	ppm	123	300	90	182

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.

Depot: VP179089
Unique No: 10729701
Signed: Jonathan Hester
Report Date: 09 Nov 2023

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GRAPHS

