

# OIL ANALYSIS REPORT



## CHARLESTON NAVIGATION VOLVO 1013398759 - CENTER DIESEL ENGINE

**Sample No:** VPA020826  
**Oil Type:** CHEVRON DELO 400 LE 15W40

### SAMPLE INFORMATION

Sample Number	<b>VPA020826</b>	VPA002235	VPA003954	VPA003951
Sample Date	<b>20 May 2024</b>	20 Jul 2015	30 Apr 2015	26 Feb 2015
Machine Hours	<b>382</b>	3010	2567	1998
Oil Hours	<b>382</b>	443	569	521
Oil Changed	<b>Changed</b>	Changed	Changed	Changed
Sample Status	<b>NORMAL</b>	NORMAL	NORMAL	NORMAL

**CHARLESTON NAVIGATION**  
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### OIL CONDITION

Visc @ 100°C	cSt	<b>13.1</b>	13.49	13.43	13.96
Base Number (BN)	mg KOH/g	<b>8.1</b>	---	---	---
Oxidation (PA)	%	<b>68</b>	56	72	64

### CONTAMINATION

Water	%	<b>NEG</b>	NEG	NEG	NEG
Soot %	%	<b>0.5</b>	0.3	0.4	0.4
Nitration (PA)	%	<b>72</b>	58	67	67
Sulfation (PA)	%	<b>61</b>	50	61	58
Glycol	%	<b>NEG</b>	NEG	NEG	NEG
Fuel	%	<b>&lt;1.0</b>	<1.0	<1.0	<1.0
Silicon	ppm	<b>8</b>	3	3	4
Sodium	ppm	<b>2</b>	2	2	3
Potassium	ppm	<b>&lt;1</b>	3	<1	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	<b>16</b>	10	13	14
Copper	ppm	<b>54</b>	2	4	9
Lead	ppm	<b>&lt;1</b>	1	<1	<1
Tin	ppm	<b>2</b>	<1	0	3
Aluminum	ppm	<b>3</b>	3	4	4
Chromium	ppm	<b>&lt;1</b>	<1	<1	<1
Molybdenum	ppm	<b>69</b>	79	81	86
Nickel	ppm	<b>0</b>	<1	0	1
Titanium	ppm	<b>0</b>	0	0	0
Silver	ppm	<b>0</b>	0	0	0
Manganese	ppm	<b>1</b>	<1	0	<1
Vanadium	ppm	<b>0</b>	0	0	0

### ADDITIVES

Calcium	ppm	<b>1263</b>	1444	1522	1543
Magnesium	ppm	<b>861</b>	378	425	433
Zinc	ppm	<b>1240</b>	1089	1314	1191
Phosphorus	ppm	<b>1024</b>	938	1023	1040
Barium	ppm	<b>0</b>	0	0	0
Boron	ppm	<b>54</b>	184	226	307

**Depot:** VPCHACHA  
**Unique No:** 11060595  
**Signed:** Don Baldrige  
**Report Date:** 05 Jun 2024

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# VOLVO PENTA

## GRAPHS

