

# OIL ANALYSIS REPORT

# VOLVO PENTA

**NADINE URUIOLI PHIL REISCHMAN VOLVO PENTA 7008535399 - STARBOARD DIESEL ENGINE**

**Sample No:** VPA051581

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

## SAMPLE INFORMATION

|               |             |             |     |     |
|---------------|-------------|-------------|-----|-----|
| Sample Number | VPA051581   | VPA041095   | --- | --- |
| Sample Date   | 09 Jan 2024 | 10 Nov 2022 | --- | --- |
| Machine Hours | 218         | 98          | --- | --- |
| Oil Hours     | 218         | 98          | --- | --- |
| 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      | █ 13.6 | █ 13.1 | --- | --- |
| Base Number (BN) | mg KOH/g | █ 8.5  | █ 10.9 | --- | --- |
| Oxidation (PA)   | %        | 54     | 69     | --- | --- |

## CONTAMINATION

|                |     |       |       |     |     |
|----------------|-----|-------|-------|-----|-----|
| Water          | %   | NEG   | NEG   | --- | --- |
| Soot %         | %   | █ 0.4 | █ 0.2 | --- | --- |
| Nitration (PA) | %   | 68    | 54    | --- | --- |
| Sulfation (PA) | %   | 52    | 66    | --- | --- |
| Glycol         | %   | NEG   | NEG   | --- | --- |
| Fuel           | %   | <1.0  | <1.0  | --- | --- |
| Silicon        | ppm | █ 13  | █ 20  | --- | --- |
| Sodium         | ppm | █ 3   | █ 4   | --- | --- |
| Potassium      | ppm | █ 2   | █ 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 | █ 17 | █ 17  | --- | --- |
| Copper     | ppm | █ 90 | █ 37  | --- | --- |
| Lead       | ppm | █ 1  | █ <1  | --- | --- |
| Tin        | ppm | █ <1 | █ <1  | --- | --- |
| Aluminum   | ppm | █ 3  | █ 5   | --- | --- |
| Chromium   | ppm | █ 1  | █ 1   | --- | --- |
| Molybdenum | ppm | █ 20 | █ 104 | --- | --- |
| Nickel     | ppm | █ 2  | █ 3   | --- | --- |
| Titanium   | ppm | █ 0  | █ 0   | --- | --- |
| Silver     | ppm | █ 0  | █ 1   | --- | --- |
| Manganese  | ppm | █ <1 | █ <1  | --- | --- |
| Vanadium   | ppm | <1   | <1    | --- | --- |

## ADDITIVES

|            |     |        |        |     |     |
|------------|-----|--------|--------|-----|-----|
| Calcium    | ppm | █ 1315 | █ 1532 | --- | --- |
| Magnesium  | ppm | 732    | █ 670  | --- | --- |
| Zinc       | ppm | █ 849  | █ 964  | --- | --- |
| Phosphorus | ppm | █ 753  | █ 784  | --- | --- |
| Barium     | ppm | █ 0    | █ 0    | --- | --- |
| Boron      | ppm | █ 88   | █ 288  | --- | --- |

**Depot:** VP152741

**Unique No:** 10843064

**Signed:** Doug Bogart

**Report Date:** 06 Feb 2024

# OIL ANALYSIS REPORT

**VOLVO  
PENTA**

## GRAPHS

