

# OIL ANALYSIS REPORT

# VOLVO PENTA

## VOLVO PENTA A310188 - STARBOARD DIESEL ENGINE

Sample No: VPA051942

Oil Type: CHEVRON DELO 400 MULTIGRADE 15W40

### SAMPLE INFORMATION

|               |             |     |     |     |
|---------------|-------------|-----|-----|-----|
| Sample Number | VPA051942   | --- | --- | --- |
| Sample Date   | 15 Nov 2023 | --- | --- | --- |
| Machine Hours | 649         | --- | --- | --- |
| Oil Hours     | 0           | --- | --- | --- |
| Oil Changed   | Changed     | --- | --- | --- |
| Sample Status | NORMAL      | --- | --- | --- |

#### North Harbor Diesel Inc

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### OIL CONDITION

|                  |          |        |     |     |     |
|------------------|----------|--------|-----|-----|-----|
| Visc @ 100°C     | cSt      | █ 13.5 | --- | --- | --- |
| Base Number (BN) | mg KOH/g | █ 8.5  | --- | --- | --- |
| Oxidation (PA)   | %        | 50     | --- | --- | --- |

### 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.

### CONTAMINATION

|                |     |       |     |     |     |
|----------------|-----|-------|-----|-----|-----|
| Water          | %   | NEG   | --- | --- | --- |
| Soot %         | %   | █ 0.1 | --- | --- | --- |
| Nitration (PA) | %   | 54    | --- | --- | --- |
| Sulfation (PA) | %   | 50    | --- | --- | --- |
| Glycol         | %   | NEG   | --- | --- | --- |
| Fuel           | %   | < 1.0 | --- | --- | --- |
| Silicon        | ppm | █ 16  | --- | --- | --- |
| Sodium         | ppm | █ 4   | --- | --- | --- |
| Potassium      | ppm | █ 9   | --- | --- | --- |

### WEAR METALS

|            |     |       |     |     |     |
|------------|-----|-------|-----|-----|-----|
| Iron       | ppm | █ 16  | --- | --- | --- |
| Copper     | ppm | █ 4   | --- | --- | --- |
| Lead       | ppm | █ 0   | --- | --- | --- |
| Tin        | ppm | █ < 1 | --- | --- | --- |
| Aluminum   | ppm | █ 3   | --- | --- | --- |
| Chromium   | ppm | █ < 1 | --- | --- | --- |
| Molybdenum | ppm | 8     | --- | --- | --- |
| Nickel     | ppm | █ 0   | --- | --- | --- |
| Titanium   | ppm | █ < 1 | --- | --- | --- |
| Silver     | ppm | █ 0   | --- | --- | --- |
| Manganese  | ppm | █ < 1 | --- | --- | --- |
| Vanadium   | ppm | < 1   | --- | --- | --- |

### ADDITIVES

|            |     |        |     |     |     |
|------------|-----|--------|-----|-----|-----|
| Calcium    | ppm | █ 1332 | --- | --- | --- |
| Magnesium  | ppm | █ 723  | --- | --- | --- |
| Zinc       | ppm | █ 860  | --- | --- | --- |
| Phosphorus | ppm | █ 685  | --- | --- | --- |
| Barium     | ppm | █ 0    | --- | --- | --- |
| Boron      | ppm | █ 101  | --- | --- | --- |

Depot: VP179089

Unique No: 10755180

Signed: Jonathan Hester

Report Date: 27 Nov 2023

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## GRAPHS

