## OIL ANALYSSS REPORT

# BELLALUNA VOLVOPENTA A361808-STARBOARD DIESEL ENGINE 

Sample No: VPA049849<br>Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3

| SAMPLE NFORMATION |  |  |  |  |  | Outstanding Marine |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sample Number |  | VPA049849 | VPA046506 | --- | --- |  |
| Sample Date |  | 31 Oct 2023 | 28 Mar 2023 | --- | --- |  |
| Machine Hours |  | 0 | 552 | --- | --- | PO Box 274 |
| Oil Hours |  | 50 | 50 | --- | --- | GALENA, MD |
| Oil Changed |  | N/A | Changed | --- | --- | 21635 |
| Sample Status |  | NORMAL | NORMAL | --- | --- | Contact: Ronda Bolinger rlwb@verizon.net |
| OLL CONDIIISN |  |  |  |  |  | T: |
| Visc @ $100^{\circ} \mathrm{C}$ | cSt | $\square 13.3$ | $\square 13.3$ | --- | --- | Diagnosis |
| Base Number (BN) | $\mathrm{mg} \mathrm{KOH} / \mathrm{g}$ | $\square 10.1$ | $\square 10.1$ | --- | --- |  |
| Oxidation (PA) | \% | 55 | 55 | --- | --- |  |
| COSTAMNATIOK |  |  |  |  |  | to monitor.All component wear rates |
| Soot \% | \% | $\square 0.2$ | $\square 0.2$ | --- | --- | any contamination in the oil. The BN |
| Nitration (PA) | \% | 43 | 43 | --- | --- | result indicates that there is suitable |
| Sulfation (PA) | \% | 52 | 53 | --- | --- | alkalinity remaining in the oil. The |
| Glycol | \% | NEG | $\square 0.0$ | --- | --- | dition of the oil is suitable for |
| Fuel | \% | <1.0 | <1.0 | --- | --- | further service. |
| Silicon | ppm | $\square 5$ | $\square 8$ | --- | --- |  |
| Sodium | ppm | $\square 8$ | $\square 22$ | --- | --- |  |
| Potassium | ppm | $\square<1$ | $\square<1$ | --- | --- |  |

WEAR METALS

| Iron | ppm | $\square 21$ | $\square 28$ | --- | --- |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Copper | ppm | $\square 9$ | $\square 9$ | --- | --- |
| Lead | ppm | $\square 14$ | $\square 15$ | --- | --- |
| Tin | ppm | $\square<1$ | $\square 1$ | --- | --- |
| Aluminum | ppm | $\square 18$ | $\square 71$ | --- | --- |
| Chromium | ppm | $\square 2$ | $\square 4$ | --- | --- |
| Molybdenum | ppm | $\square 69$ | $\square 57$ | --- | --- |
| Nickel | ppm | $\square 1$ | $\square 1$ | --- | --- |
| Titanium | ppm | $\square 0$ | $\square 0$ | --- | --- |
| Silver | ppm | $\square<1$ | $\square 0$ | --- | --- |
| Manganese | ppm | $\square 0$ | $\square<1$ | --- | --- |
| Vanadium | ppm | 0 | <1 | --- | --- |
| ADIITHES |  |  |  |  |  |
| Calcium | ppm | $\square 1102$ | $\square 1011$ | --- | --- |
| Magnesium | ppm | $\square 1083$ | $\square 900$ | --- | --- |
| Zinc | ppm | $\square 1331$ | $\square 1156$ | --- | --- |
| Phosphorus | ppm | $\square 1180$ | $\square 979$ | -- | --- |
| Barium | ppm | $\square 4$ | $\square 0$ | --- | --- |
| Boron | ppm | $\square 0$ | $\square 2$ | --- | --- |


| Depot: | VP153685 |
| :--- | :--- |
| Unique No: | 10724905 |
| Signed: | Sean Felton |
| Report Date: | 03 Nov 2023 |

## OIL ANAIVSIS REPORT

## 6RAPHS



