

# OIL ANALYSIS REPORT



## GRANT BOTH 505830 VOLVO PENTA 7011465380 - PORT DIESEL ENGINE

**Sample No:** VPA052138  
**Oil Type:** SHELL ROTELLA T 15W40

### SAMPLE INFORMATION

|               |                    |             |             |             |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | <b>VPA052138</b>   | VPA041033   | VPA029983   | VPA032964   |
| Sample Date   | <b>18 Jan 2024</b> | 12 Dec 2022 | 06 Jan 2022 | 10 Feb 2021 |
| Machine Hours | <b>651</b>         | 577         | 464         | 297         |
| Oil Hours     | <b>74</b>          | 100         | 150         | 100         |
| Oil Changed   | <b>Changed</b>     | Changed     | Changed     | Changed     |
| Sample Status | <b>NORMAL</b>      | ATTENTION   | ATTENTION   | ATTENTION   |

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### OIL CONDITION

|                  |          |             |      |      |      |
|------------------|----------|-------------|------|------|------|
| Visc @ 100°C     | cSt      | <b>13.1</b> | 12.4 | 12.2 | 12.3 |
| Base Number (BN) | mg KOH/g | <b>7.3</b>  | 11.2 | 10.6 | ---  |
| Oxidation (PA)   | %        | <b>53</b>   | 58   | 62   | 61   |

### CONTAMINATION

|                |     |                |      |      |     |
|----------------|-----|----------------|------|------|-----|
| Water          | %   | <b>NEG</b>     | NEG  | NEG  | NEG |
| Soot %         | %   | <b>0.5</b>     | 0.3  | 1.2  | 1.2 |
| Nitration (PA) | %   | <b>61</b>      | 50   | 68   | 68  |
| Sulfation (PA) | %   | <b>52</b>      | 57   | 63   | 61  |
| Glycol         | %   | <b>NEG</b>     | NEG  | NEG  | NEG |
| Fuel           | %   | <b>&lt;1.0</b> | <1.0 | <1.0 | 1.6 |
| Silicon        | ppm | <b>6</b>       | 4    | 9    | 16  |
| Sodium         | ppm | <b>3</b>       | 0    | 1    | <1  |
| Potassium      | ppm | <b>2</b>       | <1   | 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 suitable for further service.

### WEAR METALS

|            |     |              |    |    |    |
|------------|-----|--------------|----|----|----|
| Iron       | ppm | <b>7</b>     | 8  | 24 | 33 |
| Copper     | ppm | <b>17</b>    | 13 | 45 | 72 |
| Lead       | ppm | <b>&lt;1</b> | <1 | 1  | 3  |
| Tin        | ppm | <b>1</b>     | <1 | <1 | 1  |
| Aluminum   | ppm | <b>2</b>     | 1  | 0  | 0  |
| Chromium   | ppm | <b>0</b>     | <1 | <1 | <1 |
| Molybdenum | ppm | <b>64</b>    | 57 | 55 | 47 |
| Nickel     | ppm | <b>1</b>     | 0  | 2  | 2  |
| Titanium   | ppm | <b>0</b>     | 0  | <1 | <1 |
| Silver     | ppm | <b>0</b>     | 1  | <1 | <1 |
| Manganese  | ppm | <b>&lt;1</b> | <1 | <1 | <1 |
| Vanadium   | ppm | <b>0</b>     | <1 | 0  | 0  |

### ADDITIVES

|            |     |              |      |      |      |
|------------|-----|--------------|------|------|------|
| Calcium    | ppm | <b>1783</b>  | 1041 | 1066 | 1355 |
| Magnesium  | ppm | <b>187</b>   | 881  | 926  | 735  |
| Zinc       | ppm | <b>1119</b>  | 1173 | 1087 | 1166 |
| Phosphorus | ppm | <b>960</b>   | 989  | 1001 | 1044 |
| Barium     | ppm | <b>&lt;1</b> | <1   | 0    | 0    |
| Boron      | ppm | <b>83</b>    | 2    | 3    | 2    |

**Depot:** VP297371  
**Unique No:** 10847950  
**Signed:** Don Baldrige  
**Report Date:** 29 Jan 2024

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# VOLVO PENTA

## GRAPHS

