

Unit ID **Ship propulsion engine**  
 Component **Two-stroke marine diesel engine, cylinder oil**  
 Current sample number **1700922**

OELCHECK GmbH · Postfach 1116 · 83094 Brannenburg

Machine type: **6270 MC**  
 Manufacturer: **MAN B&W**  
 Sample from: **Main engine, cylinder oil**  
 Oil brand name: **Mobil Mobilgard 570**

Example report  
 Analysis scope: Analysis-Kit 2

### Diagnosis for the current laboratory values

There is no significant change of wear metals since the previous sample. Silicon and aluminium above the allowable limits. This usually involves contaminants from heavy-oil fuel, which often cause increased wear. Please check the aluminium and silicon content of the fuel and improve fuel filtration if necessary. The Base Number has dropped by more than 50% compared to the fresh oil. Check the sulphur content of the fuel or the injection ratio. Please send the next specimen to the laboratory promptly for trend analysis.

Dipl.-Ing. Rüdiger Krethe

### Sample Rating



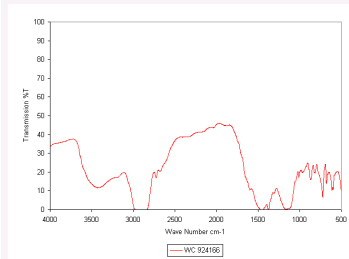
action

| ANALYSIS RESULTS           |                    |       | Current sample | Previous samples |            |            |
|----------------------------|--------------------|-------|----------------|------------------|------------|------------|
| LAB NUMBER                 |                    |       | 1700922        | 1700923          | 1700924    | 1700925    |
| SAMPLE RATING              |                    |       | !              | ?                | ?          | ?          |
| Date tested                |                    |       | 04.07.2010     | 05.04.2010       | 05.01.2010 | 05.09.2009 |
| Date sample taken          |                    |       | 25.06.2010     | 15.03.2010       | 21.12.2009 | 21.08.2009 |
| Date of last oil change    |                    |       | -              | -                | -          | -          |
| Top-up since change        |                    |       | 0              | 0                | 0          | 0          |
| Operating hrs since change |                    |       | 0              | 0                | 0          | 0          |
| Total operating hrs        |                    |       | 0              | 0                | 0          | 0          |
| Oil changed                |                    |       | -              | -                | -          | -          |
| WEAR                       |                    |       |                |                  |            |            |
| Iron                       | Fe                 | mg/kg | 40             | 43               | 58         | 51         |
| Chrome                     | Cr                 | mg/kg | 4              | 3                | 3          | 2          |
| Tin                        | Sn                 | mg/kg | 0              | 0                | 0          | 0          |
| Aluminium                  | Al                 | mg/kg | 19             | 7                | 9          | 9          |
| Nickel                     | Ni                 | mg/kg | 49             | 35               | 31         | 29         |
| Copper                     | Cu                 | mg/kg | 8              | 14               | 8          | 8          |
| Lead                       | Pb                 | mg/kg | 1              | 1                | 1          | 1          |
| PQ index                   | -                  |       | OK             | 25               | 34         | 27         |
| CONTAMINATION              |                    |       |                |                  |            |            |
| Silicon                    | Si                 | mg/kg | 46             | 22               | 23         | 26         |
| Potassium                  | K                  | mg/kg | 40             | 27               | 22         | 22         |
| Sodium                     | Na                 | mg/kg | 45             | 44               | 112        | 51         |
| Vanadium                   | V                  | mg/kg | 148            | 86               | 92         | 73         |
| Water                      | %                  |       | 0.56           | 0.45             | 0.48       | 0.41       |
| Glycol                     | -                  |       | negative       | negative         | negative   | negative   |
| Soot content               | %                  |       | 0.2            | 0.2              | 0.3        | 0.2        |
| OIL CONDITION              |                    |       |                |                  |            |            |
| Viscosity at 40°C          | mm <sup>2</sup> /s |       | 224.26         | 221.96           | 266.88     | 202.99     |
| Viscosity at 100°C         | mm <sup>2</sup> /s |       | 19.42          | 19.83            | 22.48      | 18.37      |
| Viscosity index            | -                  |       | 98             | 102              | 103        | 100        |
| Oxidation                  | A/cm               |       | 8              | 10               | 10         | 16         |
| Nitration                  | A/cm               |       | 18             | 22               | 25         | 20         |
| Sulfation                  | A/cm               |       | > 40           | > 40             | > 40       | > 40       |
| Dispersancy                | %                  |       | 97             | 94               | 86         | 100        |
| ADDITIVES                  |                    |       |                |                  |            |            |
| Calcium                    | Ca                 | mg/kg | 13047          | 11756            | 13111      | 11197      |
| Magnesium                  | Mg                 | mg/kg | 118            | 88               | 99         | 80         |
| Boron                      | B                  | mg/kg | 2              | 2                | 1          | 2          |
| Zinc                       | Zn                 | mg/kg | 258            | 232              | 217        | 225        |
| Phosphorus                 | P                  | mg/kg | 128            | 109              | 89         | 118        |
| Molybdenum                 | Mo                 | mg/kg | 2              | 3                | 2          | 3          |
| Sulphur                    | S                  | % Wt. | 1.99           | 1.68             | 1.76       | 1.86       |
| ADDITIONAL TESTS           |                    |       |                |                  |            |            |
| BN                         | mgKOH/g            |       | 18.33          | 23.53            | 26.70      | 24.54      |

Bottle and Cap



Infrared Spectrum



CCD oil spot

