

Unit ID **Ship drive**
Component **Four-stroke marine diesel engine**
Current sample number **1700949**

OELCHECK GmbH · Postfach 1116 · 83094 Brannenburg

Example report
Analysis scope: Analysis-Kit 2

Machine type: **Motor vessel**
Manufacturer: **MWM 348**
Oil brand name: **Shell Gadinia 40**
Oil quantity in system: **250 l**

Diagnosis for the current laboratory values

Iron strongly increased by abrasive or corrosive wear. The PQ index indicates an increased amount of magnetic ferrous particles. Sodium slightly increased. Possible reason: Residue from salts (NaCl), saline or inhibited water. The water value is too high and is far above the permissible level. Too much water may cause corrosion and/or cavitation. The soot content has increased slightly. The base number BN (indicator for alkaline reserve) is lower than in the fresh oil. Therefore, the oil can neutralize fewer acids created in the combustion process. I recommend that you change the oil as soon as possible if you have not already done so.

Dipl.-Ing. Stefan Mitterer

Sample Rating



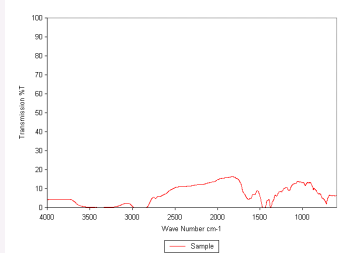
action

| ANALYSIS RESULTS | | | Current sample | Previous samples | |
|----------------------------|--------------------|-------|-------------------|------------------|--|
| LAB NUMBER | | | 1700949 | | |
| SAMPLE RATING | | | | | |
| Date tested | | | 15.09.2010 | | |
| Date sample taken | | | 14.09.2010 | | |
| Date of last oil change | | | 16.04.2010 | | |
| Top-up since change | | | - | | |
| Operating hrs since change | | | 2310 | | |
| Total operating hrs | | | 9874 | | |
| Oil changed | | | no | | |
| WEAR | | | | | |
| Iron | Fe | mg/kg | 218 | | |
| Chrome | Cr | mg/kg | 2 | | |
| Tin | Sn | mg/kg | 2 | | |
| Aluminum | Al | mg/kg | 8 | | |
| Nickel | Ni | mg/kg | 1 | | |
| Copper | Cu | mg/kg | 9 | | |
| Lead | Pb | mg/kg | 4 | | |
| PQ index | - | | 97 | | |
| CONTAMINATION | | | | | |
| Silicon | Si | mg/kg | 18 | | |
| Potassium | K | mg/kg | 11 | | |
| Sodium | Na | mg/kg | 84 | | |
| Water | % | | 1.53 | | |
| IR Glycol | - | | negative | | |
| Diesel fuel | % | | < 0.30 | | |
| Biodiesel | % | | < 0.30 | | |
| Soot content | % | | 1.1 | | |
| OIL CONDITION | | | | | |
| Viscosity at 40°C | mm ² /s | | 129.10 | | |
| Viscosity at 100°C | mm ² /s | | 14.18 | | |
| Viscosity index | - | | 108 | | |
| Oxidation | A/cm | | 15 | | |
| Nitration | A/cm | | 9 | | |
| Sulfation | A/cm | | 10 | | |
| Dispersancy | % | | 96 | | |
| ADDITIVES | | | | | |
| Calcium | Ca | mg/kg | 3875 | | |
| Magnesium | Mg | mg/kg | 79 | | |
| Boron | B | mg/kg | 6 | | |
| Zinc | Zn | mg/kg | 411 | | |
| Phosphorus | P | mg/kg | 354 | | |
| Barium | Ba | mg/kg | 0 | | |
| Molybdenum | Mo | mg/kg | 0 | | |
| Sulphur | S | mg/kg | 7681 | | |
| ADDITIONAL TESTS | | | | | |
| BN | mgKOH/g | | 9.11 | | |

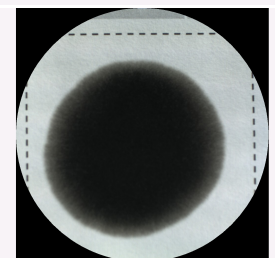
Bottle and Cap



Infrared Spectrum



CCD oil spot



LAB REPORT



Kerschelweg 28 • D-83098 Brannenburg
Tel. +49(0)8034-9047-0 • info@oelcheck.de

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