

Unit ID **Steam turbine**
 Component **Control oil**
 Current sample number **1704488**



OELCHECK GmbH · Kerschelweg 28 · 83098 Brannenburg

Machine type: **DKZ 42 E520**
 Manufacturer: **ABB**
 Oil brand name: **Shell Turbo T 46**
 Oil quantity in system: **500 l**

Example report
 Analysis scope: Turbine Oil Kit 4

Diagnosis for the current laboratory values

There is no significant change in comparison to the previous sample. All analyzed values are within the permissible tolerance levels. We cannot find abnormal wear or harmful contamination in the oil. Further use of oil without any corrective action can be recommended. I recommend that you send the next sample at the next service interval or at your regular inspection for trend analysis.

Dipl.-Ing. Andy Böhme (CLS)

Sample Rating



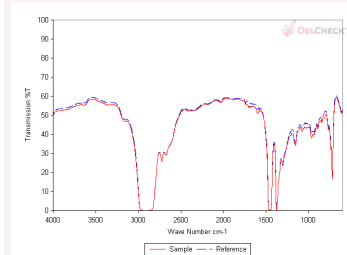
normal

| ANALYSIS RESULTS | | | Current sample | 5 previous samples not shown | | |
|-----------------------------|-------------|-------|----------------|------------------------------|------------|------------|
| LAB NUMBER | | | 1704488 | 1700937 | 1704489 | 1704490 |
| SAMPLE RATING | | | | | | |
| Date tested | | | 09.05.2023 | 27.04.2023 | 13.02.2023 | 02.11.2022 |
| Date of sample taken | | | 02.05.2023 | 30.03.2023 | 08.02.2023 | 27.10.2022 |
| Date of last oil change | | | 18.04.2014 | 12.03.2013 | 18.04.2014 | 18.04.2014 |
| Top-up since change | l | | 0 | 3400 | 0 | - |
| Operating time since change | d | | 3301 | 106134 | 3217 | 3113 |
| Total operating time | a | | 32 | 229296 | 32 | 32 |
| Oil changed | | | no | no | no | no |
| WEAR | | | | | | |
| Iron | Fe | mg/kg | 0 | 1 | 0 | 1 |
| Chrom | Cr | mg/kg | 0 | 0 | 0 | 0 |
| Tin | Sn | mg/kg | 0 | 0 | 1 | 0 |
| Aluminum | Al | mg/kg | 0 | 0 | 0 | 0 |
| Nickel | Ni | mg/kg | 0 | 0 | 0 | 0 |
| Copper | Cu | mg/kg | 1 | 0 | 1 | 2 |
| Lead | Pb | mg/kg | 0 | 1 | 1 | 0 |
| Molybdenum | Mo | mg/kg | 0 | 0 | 0 | 0 |
| Manganese | Mn | mg/kg | 0 | - | 0 | 0 |
| PQ index | - | | < 25 | < 25 | < 25 | < 25 |
| CONTAMINATION | | | | | | |
| Silicon | Si | mg/kg | 0 | 0 | 0 | 0 |
| Potassium | K | mg/kg | 0 | 0 | 0 | 0 |
| Sodium | Na | mg/kg | 0 | 14 | 0 | 0 |
| Lithium | Li | mg/kg | 0 | - | 0 | 0 |
| Water K. F. | ppm | | < 30 | 228 | < 30 | < 30 |
| OIL CONDITION | | | | | | |
| Viscosity at 40°C | mm²/s | | 46.06 | 44.58 | 46.37 | 46.01 |
| Viscosity at 100°C | mm²/s | | 6.84 | 5.34 | 6.90 | 6.86 |
| Viscosity index | - | | 103 | 11 | 104 | 104 |
| Oxidation | A/cm | | 1 | - | 1 | 2 |
| IR index | - | | 99.79 | 98.89 | 99.80 | 99.67 |
| Color | Color index | | 5.0 | 5.5 | 4.5 | 5.0 |
| ADDITIVES | | | | | | |
| Calcium | Ca | mg/kg | 0 | 0 | 0 | 0 |
| Magnesium | Mg | mg/kg | 0 | 0 | 0 | 0 |
| Boron | B | mg/kg | 0 | 0 | 0 | 0 |
| Zinc | Zn | mg/kg | 0 | 0 | 0 | 1 |
| Phosphorus | P | mg/kg | 1 | > 30000 | 0 | 0 |
| Barium | Ba | mg/kg | 0 | 0 | 0 | 0 |
| Sulphur | S | mg/kg | 111 | < 10 | 24 | < 10 |

Bottle and cap



Infrared Spectrum



LAB REPORT



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page 2 of 2

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| ADDITIONAL TESTS | | | | | |
| AN / NN | mgKOH/g | < 0.10 | 0.11 | < 0.10 | < 0.10 |
| Cleanliness class | ISO 4406 | 16/14/11 | 20/17/14 | 15/13/10 | 23/21/17 |
| A: >4µm = ISO >4µm | Particles/100ml | 46390 | 588741 | 20072 | 4819367 |
| B: >6µm = ISO >6µm | Particles/100ml | 12484 | 104451 | 6693 | 1232314 |
| C: >14µm = ISO >14µm | Particles/100ml | 1108 | 8244 | 694 | 86723 |
| D: >21µm | Particles/100ml | 344 | - | 231 | 22530 |
| E: >38µm | Particles/100ml | 49 | - | 65 | 1933 |
| F: >70µm | Particles/100ml | 0 | - | 14 | 179 |
| Cleanliness class | SAE AS 4059 | 6A | - | 6E | > 12A |
| Phenolic antioxidant FT-IR | % | 67.3 | - | 68.7 | 69.5 |

