

# LUBRICANTS – CONSULTING SERVICES FOR TURBINES, GEARS, GAS/DIESEL ENGINES

Allianz Center for Technology (AZT)

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Oil quality deteriorates due to thermal, chemical and physical influences during operation which can lead to **overheating of bearings in steam and gas turbines or to corrosion in gas motor bearings.**

**If the oil and bearings are not changed in time, severe damage to high-cost parts such as turbine rotors, crank shafts and gears can occur. In case of thermal oil boilers, continuous carbonization of the oil can lead to a complete stoppage.**



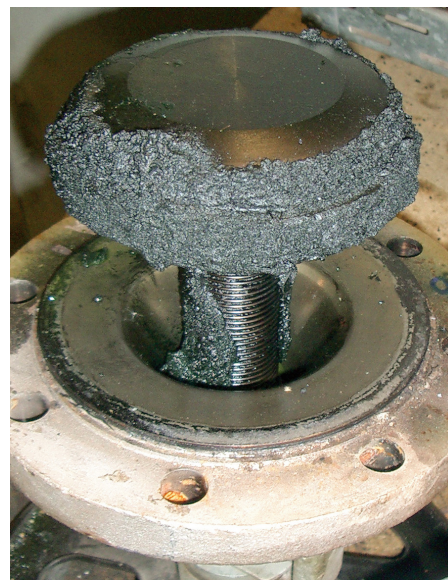
## SPECIFIED LUBRICANT QUALITY PREVENTS CORROSION AND FORMATION OF DEPOSITS IN BEARING SHELLS AND GEAR FLANKS

### ALLIANZ CENTER FOR TECHNOLOGY (AZT)

supports the client by monitoring the quality of lubricating oils. In order to determine the characteristic values of the lubricants, oil samples are periodically removed from the circulation system.

Based on the determined characteristics, accurate conclusions can be drawn with respect to the residual lifetime of the oil lubricant (i.e. if the oil must be changed) and with respect to incipient damage (e.g. material degradation in bearings).

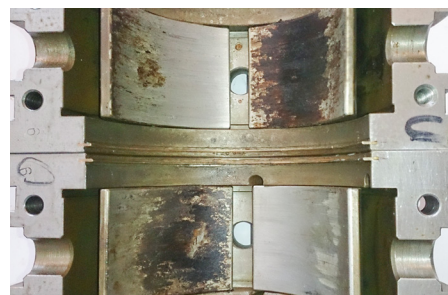
Test parameters, measurement methods, warning values or dangerous areas as well as the resulting causes and actions are stated in the national and international regulations (VGB PowerTech, VDEW-oil book, EPRI).



Carbonized oil on valve of a thermal oil boiler due to elevated oil temperatures



Selective corrosion in a gas motor plain bearing



Carbonized oil in a steam turbine bearing

## IMPORTANT CHARACTERISTICS TO BE MONITORED ARE:

- **Wear:**  
Fe; Cr; Zn; Al; Ni; Cu; Pb; Mo; Mn;
- **Contamination:**  
Si; K; Na; Li; water
- **Additives:**  
Ca; Mg; B; Zn; P; Ba; S
- **Oil Condition:**  
Viscosity; Oxidation; Colour
- **Additional Tests:**  
AN; Air release; MPC; Foam test; Water separation; Cleanliness class; Ruler test
- **Oxidation Test:**  
RPVOT



Carbonized oil in a heat exchanger of a thermal oil boiler



Varnish on flanks of a pinion shaft

## DIRECT CONTACT

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## YOUR BENEFITS

- ✓ Independent evaluation of the state of lubricants
- ✓ Recommendations for oil change
- ✓ Identification of possible failure scenarios
- ✓ Specific recommendations on failure prevention