

# WATER TREATMENT AND CONDITIONING OF WATER/STEAM CYCLE

Allianz Center for Technology (AZT)

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Insufficient water steam quality can lead to formation of deposits on steam turbine blading, or even more severely, to corrosion of components in the water steam cycle.

Adequate conditioning of the feed water in the steam generator, as well as continuous monitoring, is essential to guarantee a good quality water steam cycle.

## CONSULTING SERVICE FOR WATER STEAM QUALITY TO PREVENT CORROSION AND DEPOSITS ON STEAM TURBINE BLADING

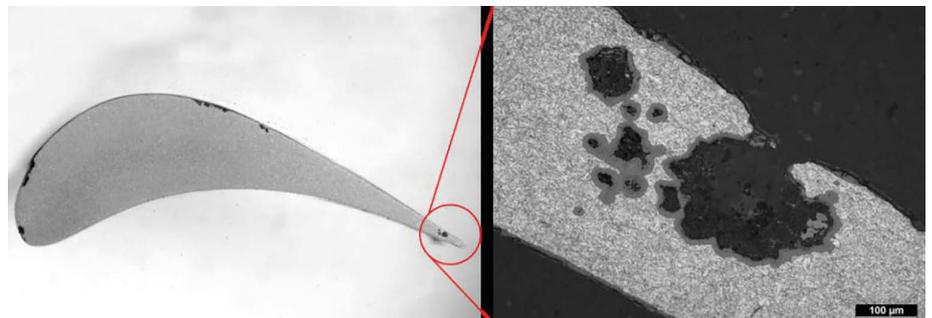
### ONLINE-MEASUREMENTS

- Electrical conductivity
- pH-value
- Sodium (Na) in trace amounts
- Oxygen in trace amounts
- Iron (Fe) measurements



### LABORATORY INVESTIGATIONS

- Chemical analysis and X-ray structure analysis of materials, deposits, and corrosion products
- Scanning electron microscopy (SEM)
- Metallographic Investigations
- Chloride quick test (onsite)



Pitting corrosion on steam turbine blades – metallographic investigation of an airfoil section

## ALLIANZ CENTER FOR TECHNOLOGY (AZT)

supports the client by optimizing the conditioning of the feed water or the water steam cycle to prevent deposition and corrosion. In the case of deposits formed on steam turbine blading or in the case of corrosion observed in the water steam cycle, AZT can help to identify the source of contamination that results in these degradation effects.

This is done by analyzing operating records as well as doing online measurements of the water steam quality. Investigation on the root cause also includes review of the general operating conditions of the boiler and material data as well as the analysis of deposits in the laboratory. National and international guidelines have to be taken into account depending on regional requirements (i.e. VGB, TÜV, TRD, EPRI, EN).



White deposits found on a double-flow



Corrosion in the gap of the blade grooves

Deposits on guide vanes of a steam turbine

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