

Next-Generation Boiler Water Management in Flexible Power Operations

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Flexible operation in modern power plants intensifies corrosion risks in boiler and HRSG systems, particularly Flow-Accelerated Corrosion (FAC). This presentation summarizes key factors influencing FAC, including flow conditions, temperature, material composition, and water chemistry variables such as pH, dissolved oxygen, and ORP. Treatment program options—AVT(R), AVT(O), OT, PT, and CT—are compared with emphasis on their suitability for different HRSG configurations and operating regimes. Case studies demonstrate that transitioning from High-AVT(R) to High-AVT(O) enhances oxide film stability, reduces iron transport, and mitigates operational issues. Effective shutdown preservation methods are also highlighted. These practices represent next-generation boiler water management approaches that improve reliability under flexible, cyclic operation.

Graphical Abstract (mandatory)

