

Chemical Cleaning and Passivation



A BES&T chemically cleaned tube

The initial cleaning of a new boiler or pipe-work is critical to its operational success. Added costs grow rapidly with no or poorly applied chemical cleanings.

Chemical Cleaning removes inorganic residue such as rust, silica and mill-scale, utilizing chemical compounds which are determined by the needs of your specific project. Typical chemical cleanings involve the use of tri-sodium phosphate / di-sodium phosphate, which gently scrub the residues from the interior of piping, tubes and other interior boiler surfaces.

Failure to remove this inorganic residue results in pitting and further corrosion and eventually, tube failure. Recent investigations of tube failures on relatively new HRSGs have shown that on some units, heavy deposits of scale are located at the tube to header weld area. This localized heavy corrosion is the result of the localized post weld heat treatment of the tube to header welds. It is common practice for HRSG fabricators to locally heat-treat these areas of the harp sections to avoid excessive corrosion of the finned surfaces of the tubes. The presence of the heavy deposits may result in reduced natural circulation in the tubes and may also provide a site for under scale corrosion. When such localized heavy deposits of mill scale are present, special care must be taken during chemical cleanings to insure that sufficient chemistry and contact time is provided to completely remove these deposits.



Corrosion and pitting



A boroscopic look at rust inside this system

BES&T engineers create a procedure to ensure complete chemical cleaning of your project, based on the condition of your systems. Chemical analysis is followed by the engineer's determination of the best cleaning method and appropriate chemistry for complete cleaning.

Chemical cleaning is followed by passivation of the surfaces. Sometimes a nitrogen base, sometimes passivation takes another chemical form; our engineers recommend the method best suited to your project.