



Shippensburg Pump Company, Inc.

BOILER FEED • CONDENSATE • DEAERATOR • VACUUM

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Re: Why Deaerate Feed Water?

Deaeration protects a boiler system from the corrosion due to the presence of gases in the raw feed and make-up water. Therefore, the primary reasons for deaeration are:

1. *Carbon Dioxide.* When carbon dioxide combines with water, it forms very corrosive carbonic acid that will rapidly dissolve return lines and process equipment.
2. *Remove Oxygen.* The presence of oxygen in the feed water is extremely corrosive to boilers by itself. However, when oxygen is present with carbon dioxide, the condensate becomes four times more corrosive than only oxygen or carbon dioxide is present.
3. *Higher Temperature Feed water.* The addition of hot feed water greatly reduces the changes of thermal shock to the boiler receiver that is caused by expansion and contraction of heating surfaces.
4. *Removal of Non-Condensable Gases.* Air or non-condensable gases in steam retard heat transfer because it acts as an insulating blanket.
5. *Cost Savings.* A savings can be attained by eliminating the need for extra chemicals and improved boiler room operations through the obvious benefits derived from deaeration described above. Also the high temperature condensate, that drips from traps in high pressure systems, is often wasted as flash steam due to the cost of recovery equipment. With deaeration equipment, the high temperature condensate drips can be returned directly to the deaerator and its heat recovered at not cost.

Sincerely,

Shipco® Marketing and Sales Department