CE Water Management, Inc

Why Treat Water?

Water has unique properties that allow it to be used for a wide variety of purposes. Water has excellent thermal properties. It can be heated to the point of converting it to a gas, which is steam. It can be cooled, providing the air conditioning for office buildings. Fortunately, it is abundant and relatively cheap.

With all of these characteristics there can be problems in using water. For drinking and domestic water uses, our municipal water treatment plants typically filter the water to remove material suspended in the water, and then add chlorine to kill any microorganisms to prevent health problems.

In addition to the suspended material and microorganisms, there are other impurities that can cause problems:

Hardness: – we measure that as the amount of calcium and magnesium in the water. Hardness can lead to scale deposits. A great example of this would be to take some tap water and boil it on the stove. If the water totally boils away what do you see – a white deposit on the sides and bottom of the pan. That's scale. See the discussion in the boiler and cooling water section for the significance of these deposits in those types of systems.
Oxygen – while oxygen is essential for human life and for ignition and burning, it can be very corrosive when it is heated in the water. This type of corrosion is evidenced as pits on the waterside of pipes. This can lead to early pipe failure and needed replacement – a costly process.
Alkalinity – while some alkalinity is beneficial, some can be converted to corrosive gases. These can lead to pipe corrosion failures. Additionally, alkalinity can be combined with hardness to form scale.
Silica – a naturally occurring element we know commonly as sand. While excellent for making glass, silica can form tenacious deposits on heat transfer equipment.
Iron – also found in nature, iron can form very dense deposits on heat transfer tubes.
Microorganisms – as mentioned earlier, some may be harmful to humans. Others can form energy robbing deposits and films in many industrial applications. The most obvious form, but not the biggest trouble maker, is algae. Other microorganisms can actually attack metal and form pits if untreated.

The reasons we treat water are to insure the beneficial characteristics of water while providing protection from:

Scale Deposits: Which increase energy costs
Corrosion: Which increase equipment replacement and system piping costs
Fouling: Which can lead to increased energy costs, as part of deposits
Microbial attack: Which can increase energy costs, (as part of formed deposits) and/or increase risk and liability issues, (including the possibility of Legionella bacteria).

Successful water treatment programs:
1. Prevent mineral scale which will increase costs.
2. Minimize corrosion, which will increase (replacement) costs.
3. Minimize our customer's employees' chemical exposure and risk.
4. Protect the environment from chemical contamination.

CE Water Management, Inc ■ 3250 Brinkerhoff Road ■ Kansas City, KS 66115 ■ 913-621-7047 Tel ■ 913-621-0760 Fax ■ info@cewater.com