



Chemical Water Treatment Summary

Cooling tower chemical water treatment is performed to target three areas.

1. Biological control – reducing and controlling the biological organisms to a safe level
2. Corrosion control – limiting the corrosion rate in the system to provide the necessary equipment life expectancy
3. Scale control – eliminating or reducing the formation of scale on heat transfer surfaces to maintain efficient heat rejection and energy efficiency

Typically, there are two chemical groups administered to achieve these three goals.

- Biocides
 - Oxidizing – oxidizing biocides ‘burn’ microorganisms, therefore an organism developing immunity to an oxidizer is not typical.
 - Bromine, Chlorine,,,,
 - Non Oxidizing – non-oxidizers are poisons. Microorganisms can develop immunity to non-oxidizers in similar fashion to microorganism immunity with extended administration of the same antibiotic.
 - Glutaraldehyde, Isothiazolin, DBNPA,,,,,
- Inhibitor
 - A single product with ingredients to provide necessary performance for corrosion and scale control



In addition to chemicals, a controller measuring conductivity of the circulating water and operating an automatic valve to control total dissolved solids is critical. Other factors for consideration in an overall evaluation of a water treatment program:

- Water consumption – better water treatment service can allow greater water savings
- Safety – chemicals are hazardous materials. Selection of chemicals, especially biocides, should take into consideration the operating environment. As well, storage and site configuration relating to chemical containers should be a high priority to avoid potential for spills or human contact. SDS and eye wash equipment should be available near the chemicals.
- Cost – the benefits must meet or exceed the cost
- Service – a reliable and conscientious service provider ensures success

