

4.9 STABILIZATION

Water that is unstable due either to natural causes or to subsequent treatment shall be stabilized. For instance, in drinking water treatment processes, chemicals such as coagulants are added to raw water to coagulate dissolved or colloidal matters for removal in the subsequent treatment steps. Addition of certain chemicals or coagulants would change the water characteristics, such as lowering pH, alkalinity, etc., that may create aggressiveness of the water in the distribution system. Therefore, treated water should be routinely evaluated to ensure that water quality parameters and characteristics are optimized to obtain the desired water stability throughout the distribution system of a water supply.

The primary approaches to internal corrosion control in drinking water systems are to modify the water chemistry to make it less corrosive and to encourage formation of passivating films on the contacting surface. This is typically accomplished through pH and/or alkalinity adjustment or through the addition of a corrosion inhibitor. Most corrosion control treatment techniques will also be beneficial for reducing corrosion of lead, copper, iron, steel and galvanized pipe.

Increases in pH, alkalinity and carbonate buffer content are the most consistent methods for reducing the rate of corrosion. Increasing the carbonate buffer level is particularly recommended for systems treating soft water. Where adjustments to water quality parameters such as chlorine residual, pH, alkalinity and carbonate buffer strength prove insufficient to control corrosion rates, the use of corrosion inhibitors should be considered. Orthophosphate is particularly effective for this purpose in most of the situations.

It should be noted that addition of phosphate containing substances in drinking water will add to the phosphorus load entering sewage treatment facilities and may encourage biofilm growth in distribution systems.