**Section 604.505 Coagulation**

a) For purposes of this Section, coagulation is a process using coagulant chemicals and mixing by which colloidal and suspended material are destabilized and agglomerated into settleable or filterable flocs, or both.

b) For community water supplies treating surface water using direct or conventional filtration, the use of a primary coagulant is required at all times.

c) The community water supply must submit with the construction permit application the design basis for the velocity gradient (G value) selected, considering the chemicals to be added and water temperature, color and other related water quality parameters.

d) Mixing – Mixing must be adequate to disperse chemicals in the basin. The detention period should be instantaneous, but not longer than 30 seconds, with mixing equipment capable of imparting a minimum velocity gradient (G) of at least 750 fps/ft.

e) Equipment − Basins must be designed or equipped to produce adequate mixing for all treatment flow rates. Static mixing may be considered where the flow is relatively constant and will be high enough to maintain the necessary turbulence for complete chemical reactions.

f) Location − the coagulation and flocculation basin must be as close together as possible.