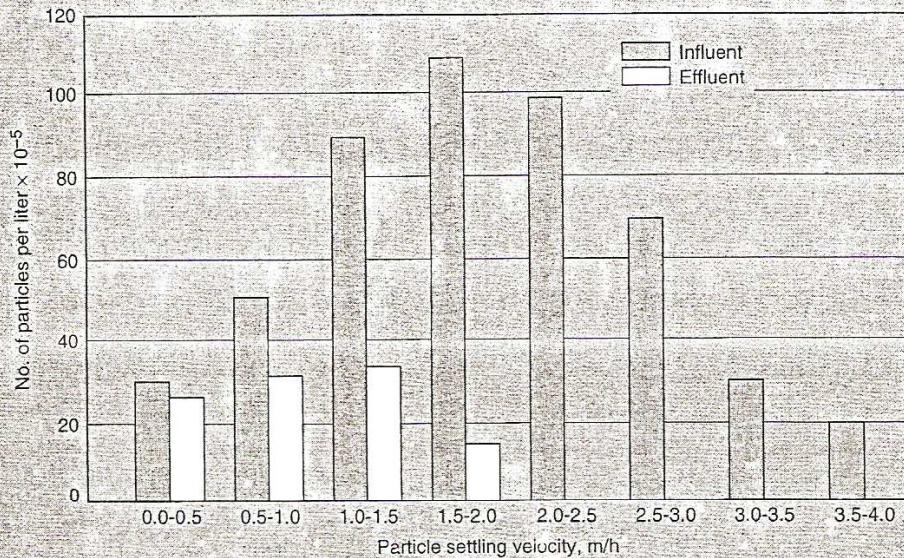


8. Plot the particle histogram for the influent and effluent wastewater.



Flocculent Particle Settling

Particles in relatively dilute solutions will not act as discrete particles but will coalesce during sedimentation. As coalescence or flocculation occurs, the mass of the particle increases, and it settles faster. The extent to which flocculation occurs is dependent on the opportunity for contact, which varies with overflow rate, depth of the basin, velocity gradients in the system, concentration of particles, and range of particle sizes. The effects of these variables can be determined only by sedimentation tests.

The settling characteristics of a suspension of flocculent particles can be obtained by using a settling column test. Such a column can be of any diameter but should be equal in height to the depth of the proposed tank. The solution containing the suspended matter should be introduced into the column in such a way that a uniform distribution of particle sizes occurs from top to bottom. Care should be taken to ensure that a uniform temperature is maintained throughout the test to eliminate convection currents. Settling should take place under quiescent conditions. The duration of the test should be equivalent to the settling time in the proposed tank.

At the conclusion of the settling time, the settled matter that has accumulated at the bottom of the column is drawn off, the remaining liquid is mixed, and the TSS of the liquid is measured. The TSS of the liquid is then compared to the sample TSS before settling to obtain the percent removal.

The more traditional method of determining settling characteristics of a suspension is to use a column similar to the one described above but with sampling ports inserted