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Science, Chemistry

Measurement of the Turbidity of Raw Water and Study the Effects of Coagulation and Flocculation

Measurement of the Turbidity of Raw Water and Study the Effects of Coagulation and Flocculation Explain the difference(s) between coagulation and flocculation processes.

Both methods are useful for waste and raw water treatment purposes. Persons interchange these words, but it is wrong. Coagulation causes colloids in suspension to combine and form smaller particles by either physical or chemical means (Wang 5). Flocculation leads to the creation of large matter in water that settles to the bottom of a container. The process of flocculation involves the formation of flocs through clinging together of solid matter in solution. Coagulation results due to widening of solid material in solution making separation possible (Goloshchapov, Zaikov & Ivanov 129). During coagulation, matter in suspension becomes unstable due to the effect of cationic particles.

2. What are the two most common ion salts used in coagulation of water/wastewater.

How do they coagulate the water/wastewater?

Aluminum salts, ferric and ferrous salts are useful for the process of coagulation. The salts include alum, FeCl3 and Fe2 (SO4) 3. The iron sulfate used is that with and without lime. Introduction of the salts in waste water results, in the formation of Ions (Hijnen & Gertjan 33). The positive ions present in water exist in hydrated states. Positive ions combine with hydroxyl ions leading to insoluble hydroxides. Insoluble complexes result when ions combine with carbonates and bicarbonates. Coagulation results

when the insoluble hydroxides precipitate in water and are separable through filtration. Precipitation of colloids takes place in the presence or absence of lime. The level of solubility of aluminum plus ferric hydroxides depends on PH, which determines the charge of the complex (Bratby 40). When PH is low, absorption of the complexes on the colloidal surface occurs leading to coagulation.

3. What is the relative power of coagulation of AlCl3 and Al2(SO4)3? Use both

positive and negative colloids.

When Aluminum chloride and sulfate are in wastewater, they exist as ion, which form non-dissolving complexes. The negative colloid repels anions and attracts cautions. The attraction power between positive and negative colloids results to agglomeration of particles (Wang 6). The repelled anions cling to positive colloids forming agglomerates. AlCl3 has a relative power of one against positive colloids and a power of 1000 against negative colloids. Al2 (SO4)3 exhibits a power of 30 against positive colloids and above 1000 against negative colloids (Bratby 39).

Works cited

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