

Technical Information:

ProMinent Fluid Controls Ltd.

ProMinent[®]

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Subject: What is a Flocculent

Product: WTS

Category: Measurement and Control

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Flocculants are chemicals that are used to aggregate colloids and other suspended particles in liquids to form flocs in a process called flocculation. Flocculants are used in water treatment processes to improve the sedimentation or filterability of small particles. For example, a flocculent may be used in either swimming pool or drinking water filtration to aid removal of microscopic particles which would otherwise cause the water to be cloudy and which would be difficult or impossible to remove by filtration alone.

Many flocculants are multivalent cations such as aluminum (as alum), iron (as ferric chloride) or magnesium. These positively charged molecules interact with negatively charged particles and molecules to reduce the barriers to aggregation. Also, long-chain polymer flocculants such as modified polyacrylamides are manufactured and sold by the flocculent producing business. Other factors such as pH, temperature and salinity can induce flocculation or influence flocculation rates.

The terms flocculent and coagulant are sometimes used interchangeably, but it is more accurate to use the term coagulant for a chemical that contributes to molecular aggregation. Usually dissolved substances are aggregated into microscopic particles by a coagulant and then these particles may be flocculated into a macroscopic floc with a flocculent. In general, coagulants will have higher net charge and a lower molecular weight than flocculants.

Flocculants can be added to process water using a number of methods, including proportional dosing using a ProMinent metering pump and contact water meter. The dosing of Flocculants should occur as far from any filters as possible to allow for reaction time, also when dosing flocculent it is important to use a higher stroke rate and reduced volume per stroke to ensure consistent flocculation of the process water

The pump output can be controlled by adjusting the stroke volume knob and by adjusting the contact input to stroke ratio using the contact control option in the pump. Using this option allows the site to adjust the pump on the fly for optimum dosing of flocculent without removing and re-configuring the water meter for different flocculation requirements.