

SafeGuard™ H2O Hydrogen Sulfide Removal System



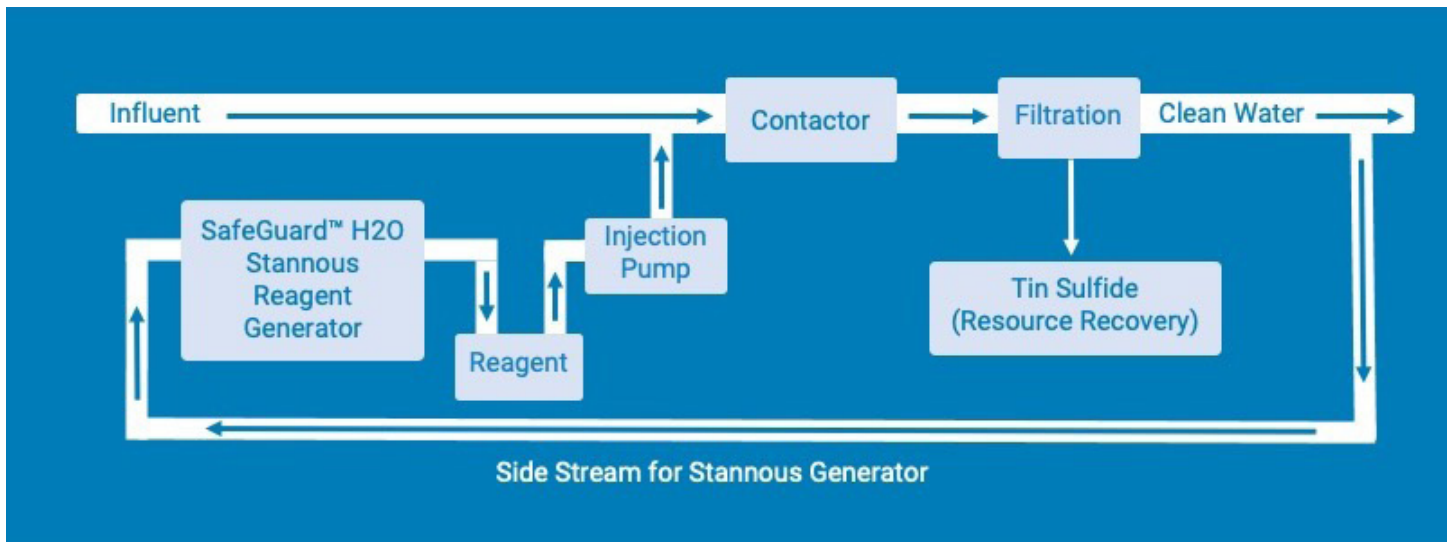
Hydrogen sulfide (H₂S) presents a nuisance for utilities by giving water a characteristic “rotten egg” taste or smell that must be removed. H₂S can occur in a wide range of water sources. However, it is particularly problematic for utilities in areas with growing populations where there are increasing complaints from homeowners about the smell of H₂S being vented to the air or about the taste imparted on drinking water from its presence in water supplies.

Effective, traditional H₂S removal technologies such as aeration and ozonation are energy intensive and result in high capital and operating costs. This often puts them beyond the financial reach of many utilities, and the use of these traditional technologies, directly conflicts with the water industry’s goal of reducing its greenhouse gas (GHG) emissions.

SafeGuard™ H₂O is a proven solution for utilities looking to reduce GHG emissions and remove H₂S to non-detect levels while lowering the cost of treatment (energy and operation). SafeGuard™ H₂O can be powered by renewable energy, and tin sulfide, a valuable resource to multiple industries, can be recovered from the process. As a low-carbon approach to H₂S removal, SafeGuard™ H₂O has achieved 100% removal of H₂S from reverse osmosis treated water and raw water supplies.

Why SafeGuard™ H2O

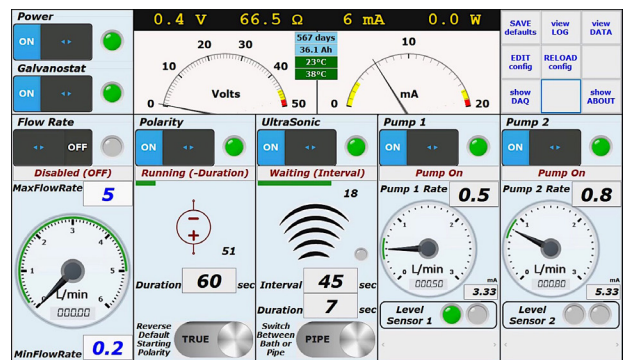
The fully automated SafeGuard™ H2O technology uses a food-grade tin metal precursor and an in-situ electrolytic generator to create a nontoxic stannous reagent on-site and on demand. The treatment precursor (tin) is highly stable and can be stored safely. There are no special health and safety risks, and special handling is not required.



SafeGuard™ H2O Hydrogen Sulfide Removal Process

The SafeGuard™ H2O system features automatic dosing to ensure optimal treatment and compliance with regulatory and operational targets. The electrogenerated stannous reagent is dosed according to the incoming H₂S level and creates stoichiometric amounts of nontoxic tin sulfide, which can be easily filtered out by a 0.1-0.05 ceramic micron filter to remove the sub-micron particles and enable resource recovery.

The modular process design is compact and is available in a containerized configuration. It easily integrates into existing infrastructure and can be scaled to meet application-specific needs. Because the system can be fully controlled, monitored, and optimized remotely 24/7/365, the presence of personnel on site for supervision is minimized, further reducing operating costs.



SafeGuard™ H2O Proprietary Control System