

HIGH STRENGTH WASTEWATER



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What is High Strength Wastewater?

This type of wastewater is usually produced by commercial businesses. High strength wastewater is different from residential wastewater. It is characterized by having an elevated concentration of organic matter, solids, or fats, oils and greases.,(FOG) or other organic components than residential wastewater.

It can also mean the effluent contains large quantities of suspended solids or high amounts of certain chemicals, such as disinfectants. Commercial establishments—funeral homes, taxidermy shops, car washes, beauty shops, food processing facilities, restaurants and nursing homes—generally produce high strength wastes and are often located in rural areas and use onsite systems for wastewater treatment. However, a restaurant or dry cleaning establishment produces very different wastewater from what a residence produces, both in quantity and quality. When these differences are not planned for, systems often fail.

Any or all of these components can interfere with the normal biological processes most onsite systems use. These characteristics vary from day to day, even hour to hour, and they can have a major impact on how a system performs. High strength wastewater can be generated in any type of facility. The wastewater quality depends on the water use and waste generation habits of the occupants. High strength wastewater can cause failure of on-site wastewater treatment components sized solely on hydraulic loading rates.

The major concern of having high amounts of organic components (high organic loading) in wastewater is drainfield clogging. Physical clogging occurs when solid material, such as grit, organic material, and grease, flows beyond the septic tank to the soil absorption field, where it is deposited on the biomat. Biological clogging generally occurs when excessive organic elements flow into the biomat. Microbes, bacteria, etc. grow so fast that the effluent can't pass into the soil. Chemical clogging often occurs in clay-type soils when high concentrations of sodium ions (salt) cause the soil to lose its structure and not allow the effluent to flow through.

Treatment plants are generally designed for average peak flow rates and average wastewater characteristics. Designing a treatment plant based only on these average values will result in a treatment plant that may not be able to handle peak conditions. Conversely, if a plant is designed for peak conditions, it may be too big to function well the rest of the time.

Handling High Strength Flows



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Commercial onsite systems have normally been designed in the same manner as household systems. However, this design principle often leads to system failure. Designers must consider flow variations, organic loading, and other factors.

They must consider the type of organic content (soluble, settleable or colloidal), the site characteristics, the final steps in the onsite system, how the effluent is introduced to the environment, and how much preprocessing is required to effectively handle the high organic strength. Onsite systems that have been used to treat commercial strength wastewater include grease traps and grease interceptors, septic tanks, aerobic treatment units, sand filters, constructed wetlands, and drip irrigation.

The design of on-site wastewater treatment systems for facilities potentially generating high strength wastewater should carefully analyze the wastewater source, evaluate the flow from the facility, develop a treatment train containing a series of technologies to remove the contaminants of concern, provide a means to maintain the components and tie the facility management to the performance of the treatment systems. These guiding principles define a process for matching the treatment train to the wastewater flow and ensuring the continued monitoring, operation and maintenance of the system.

Every commercial business is different and produces different high strength wastes. The system designed is highly subjective to each business's habits. Laundromats may produce high levels of detergents while beauty salons may have several different chemicals in their wastewater. Every business is different. Septic Preservation Services have the necessary experts to help with high strength wastes and find the solution to every commercial businesses' needs. They can help you evaluate the system and provide the solution.