

STORAGE TANK CLEANSING With OZONE

Virtually every water storage tank will develop mineral and biological deposits on its inner walls over time. They can be slimy films or rigid crusts, depending on water composition. There are several major problems associated with these buildups. One problem is they provide habitat and shelter for various microorganisms, which can contaminate the stored water and become increasingly resistant to conventional, Chlorine-based treatment methods. In case of heavy contamination, fragments of these layers can break loose and appear in the water distribution system. Furthermore, tank walls degrade as a consequence of microbial activity of harsh cleaning procedures, requiring frequent tank surface repair.

The most common procedure for tank cleaning is currently high pressure rinsing with water, followed by an application of hypochlorite solution. This method provides temporary surface disinfection. However most of the wall deposits and many of the microorganisms they contain remain in place. This leads to rapid re-accumulation of the germ population. Previous methods for complete removal of wall deposits often had the drawback that they were either damaging to the tank surfaces apply.

The use of ozone provides a safe and simple alternative to conventional cleaning and disinfection methods. Deposits Formed in the Tanks and the pipes are due to a factor called Biological Fouling that forms a convenient surface for precipitated Minerals in the water to accumulate & form scales

Bio-film is a common term used to describe the accumulation of microorganisms and their by-product excretions onto surfaces of a water treatment system. Because most microorganisms prefer to become attached to a surface, more and more microorganisms will adhere to the surfaces of a water system. As microorganisms die, they become nutrient sources for other micro-organisms. Over time, a film consisting of living and dead organisms will form. A slimy cover called a glycocalyx surrounds the organisms and serves to trap nutrients from the water source and protect the organisms from chemical destruction

The precipitation of Minerals depends on the Composition of the water (Soft water produces less precipitation than hard water) where some ions loose & exceed their solubility limits due to changes in pH and precipitate . The accumulation of these precipitates on the Bio-film surfaces later on forms what is known as scale. The improvements in water tank hygiene reduce the need for drinking water chlorination, improving water taste and reducing treatment costs.

There are two common options for controlling microbial growth in a distribution and storage system: **Ozonation and heat.** (steam sterilization) **There is a growing trend toward using ozone in storage and distribution systems because of its relatively low capital and operating costs compared to hot-water generation and storage. It also has the added value of reducing the total organic carbon (TOC) to levels well below those proposed for USP 23 Purified Water (500 ppb).**