

# KALDNES MEDIA FOR MECHANICAL FILTRATION

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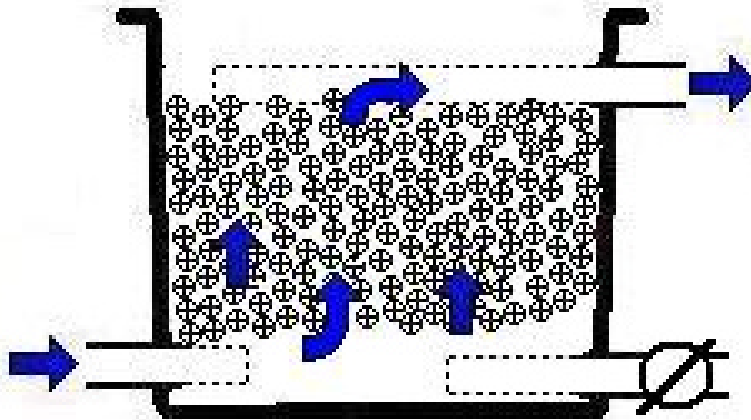
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In the previous article, we discussed some aspects of biological filtration for removal of dissolved ammonia. The nitrification processes which take place in a biological filter (really, on any solid surface to which nitrifying bacteria attach) is second in importance only to aeration and the maintenance of adequate dissolved oxygen in the pond or tank. While biological filtration attacks dissolved pollutants, mechanical filtration attacks solid pollutants. These include fish feces, decaying plant matter and any other solid and visible debris. Mechanical filtration may be somewhat less important than biological filtration. There are other ways to deal with accumulated sludge and debris such as vacuuming the pond bottom. There are important interactions between biological filtration and mechanical filtration. Almost all of the solids are organic matter which is in the process of decaying. As it decays, it releases ammonia to the water. If you remove the solids, you lessen the amount of ammonia being produced and lessen the amount of nitrification which is needed to convert ammonia.

A mechanical filter is best placed in line before a biological filter. This helps keep the biological filter clean and prevents the aeration in the moving bed from breaking up the particles of debris which would make them harder to remove.

Some types of filters have surface area for nitrifying bacteria to grow on, and also trap solid waste. This sounds like an ideal situation – doing two jobs at once. **WRONG**. A good biological filter does not trap a lot of solids. If it does, the trapped debris will cover up the nitrifying bacteria and restrict the flow of water and oxygen to them. Without a good flow of water and oxygen, the bacteria cannot do their job. Biological filtration and mechanical filtration are two different processes and if you try to accomplish them both in the same filter, both processes are compromised.

This is not to say that the same type of media cannot be used for nitrification in one filter, and solids capture in another filter. It is the way the filter is configured and the way the media is managed that determines whether the primary function is biological filtration or mechanical filtration. Kaldnes, beads and Matala mat are all good examples of media which can serve either function, depending on how they are used.



*schematic of Static-K mechanical filter*