Advancements in Aquarium Filtration

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Advancements in filtration technology, predominantly in chemical filter media, offer a greater variety of products for cleaner, healthier aquariums. New and novel filtration methods supplement existing aquarium filters to process and remove a wider range of toxic compounds.

Chemical Filtration

Activated Carbon

Carbon is covered with microscopic pores that bind organic and inorganic materials. Activated carbon removes many harmful elements from aquarium water including copper, chlorine, carbohydrates and other dissolved organic materials. It also takes out sulfa drugs, antibiotics, and other medications. One of the prominent features of activated carbon is its ability to remove discoloration in aquarium water. In other words, activated carbon can make your aquarium look so clear that you'll question whether water is still in it.

Ion Exchange Resins

These media effectively filter your aquarium water by attracting and removing specific compounds harmful to aquatic life. Available in man-made resins or naturally occurring zeolite, ion exchange media draw

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charged compounds like a magnet and exchange them with less harmful ones. Some attract ammonia or nitrite and some remove dissolved organics. Ion exchange media are often used in activated carbon mixtures like Chemi-Pure and Bio Chem Zorb. These media complement the filtering ability of activated carbon and help lower nitrate buildup by removing pollutants before they break down and enter the nitrogen cycle.

Synthetic Polymers

Similar to premium activated carbon, synthetic polymers such as Purigen have amazing adsorbent properties to control harmful nitrogenous products such as ammonia, nitrite, and nitrate. They efficiently remove soluble and insoluble impurities to keep aquarium water crystal clear. But unlike activated carbon, synthetic polymers have unique properties that allow them to be regenerated once they have been exhausted. They can be used over and over again for extended periods of time.

Phosphate Removing Media

These highly porous, super adsorbent media effectively bind large amounts of phosphate, organic compounds, and other pollutants from the aquarium. By removing phosphate, negative conditions associated with high phosphate levels such as aggressive nuisance algae growth can be curbed. There is a variety of phosphate removing media but ferric oxide hydroxide-based media is the preferred product among many reef aquarium hobbyists.

Fluidized-bed Filters

These devices take filtration a revolutionary step forward. Aquarium water is gently pushed through the filter reactor chamber to suspend filter media in a fluidized state. Depending on the model, either a biological or chemical filter media can be used in the

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reaction chamber. Units that use chemical filter media, such as the PhosBan Reactor, expose the entire surface area of the media to the incoming aquarium water. This means more pollutants are actively being removed to ensure the most efficient use of chemical filter media.

Protein Skimming

Protein skimming is another form of chemical filtration. Many aquarists feel that a protein skimmer is an absolute necessity for marine aquarium systems, especially those that are heavily stocked. A protein skimmer is an excellent supplemental filtering device that works by creating tiny bubbles in a reaction chamber. These bubbles propel proteins in the water up to the surface of the reaction chamber. As the bubbles burst, they expel the proteins upward into a collection cup or discharge tube. Skimmers remove proteins before nitrifying bacteria break them down into nitrate. With less waste to process, the bacteria consume less oxygen. Higher oxygen levels and low nitrate levels mean better health for your aquarium inhabitants.

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