Filter Media Reference Guide

This guide is provided as a reference only. It is not intended as a guarantee of performance.

Filtration Medium	Basic Characteristics	
Activated Alumina	Density (lb/ft³): 43 Bed depth (inches): 36+ Service flow (gpm/ft²): 1-2 Backwash flow (gpm/ft²): 8-10	Activated Alumina is “a mixture of amorphous and gamma aluminum oxide” that is used for removal of arsenic, fluoride, selenium, silica and humic acids. For arsenic and fluoride treatment, low pH (5.5-6) is superior. It can be regenerated with sodium hydroxide.
Anthracite	Density (lb/ft³): 50 Bed depth (inches): 24-36 Service flow (gpm/ft²): 5 Backwash flow (gpm/ft²) 12-18:	Crushed anthracite coal has long been a favorite medium-weight filter for sediment reduction. It is now most often used with sand and other media in multi-media filters.
Birm	Density (lb/ft³): 46 Bed depth (inches): 30-36 Service flow (gpm/ft²): 3.5-5 Backwash flow (gpm/ft²): 10-12	Birm is a manufactured medium consisting of plastic coated with magnesium oxide. It is designed for iron and manganese reduction. It causes iron and manganese to precipitate (change from a dissolved state to a particulate), then filters out the particulate. It can be used with or without an oxidizer. Its success without an oxidizer depends a great deal on the amount of dissolved oxygen in the water. (Testing for dissolved oxygen isn't easy, so trial and error is often the best policy.)
Calcite (Crushed marble)	Density (lb/ft³): 100 Bed depth (inches): 24-30 Service flow (gpm/ft²): 2-6 Backwash flow (gpm/ft²): 10-12	Calcite is crushed marble. It is naturally occurring calcium carbonate. It is used to raise the pH of acidic water. Since it is dissolved only in acidic water, it is self-limiting. When acidic water reaches neutral pH, no more calcite is dissolved.
ChemSorb (Natural Zeolite)	Density (lb/ft³): 55 Bed depth (inches): 24-30 Service flow	ChemSorb is a unique granular zeolite filter media. It is a natural product mined in the western U.S. It offers sediment filtration down to < 5 microns and backwashes well and has an excellent service rate.

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	(gpm/ft²): 12-18 Backwash flow (gpm/ft²): 11-13	
Corosex	Density (lb/ft³): 100 Bed depth (inches): 24-30 Service flow (gpm/ft²): 5-6 Backwash flow (gpm/ft²): 10-12	Like calcite, Corosex, which is magnesium oxide, is used to correct low pH situations. Unlike calcite, it has a tendency to overcorrect, especially if the flow rate is low. It is preferred for very low pH and for very high flow rates.
Filter-Ag	Density (lb/ft³): 25 Bed depth (inches): 24-36 Service flow (gpm/ft²): 5 Backwash flow (gpm/ft²): 8-10	Filter Ag is a manufactured lightweight sand substitute, which weighs about 1/4 as much as sand. Its main function is removal of suspended solid but it is also used at times for iron reduction.
Filox-R	Density (lb/ft³): 114 Bed depth (inches): 20 minimum Service flow (gpm/ft²): 13.5-22 Backwash flow (gpm/ft²): 16-23.5.	Filox-R is a processed natural medium known for the purity of its active ingredient (it's 80% manganese dioxide), its durability, and its high oxidation/filtration capacity. It is used for iron, manganese, and hydrogen sulfide reduction. It has an extremely long life and high service flow rate capacity. It has a high pH range of operation and imparts no taste or odor to treated water.
Garnet	Density (lb/ft³): 140 Bed depth (inches): 10+ Service flow (gpm/ft²): 10 Backwash flow (gpm/ft²): 25-30	Garnet is a natural medium used most often in multi-media filters. It is very fine and filters down to the 10-20 micron range.
Granular Activated Carbon (GAC)	Density (lb/ft³): 25 Bed depth (inches): 24-36 Chlorine	Granular carbon is the standard media for most chemical reduction situations. Its high surface area gives it massive adsorptive capacity. It can be manufactured from animal bones, wood, and petroleum, but most carbon is produced from anthracite coal or coconut shells.

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	removal Service flow (gpm/ft²): 3-5 Organic removal flow (gpm/ft²): 1-3 Backwash flow (gpm/ft²): 8-10	Go here for more information about filter carbon.
Katalox Lite	Density (lb/ft³): 66 Bed depth (inches): 29.5 minimum (47 optimal) Service flow (gpm/ft²): 6-12 Backwash flow (gpm/ft²): 8-10	Katalox Light is the latest German-engineered media, composed of zeolite coated with 10% manganese dioxide. It is a versatile medium for the treatment of iron, manganese and hydrogen sulfide. It's lighter than Filox, and requires significantly less backwash. It can also provide sediment filtration down to 3 microns, and can reduce arsenic, zinc, copper, radium and uranium. NSF & WQA certified.
KDF55	Density (lb/ft³): 171 Bed depth (inches): 10+ Service flow (gpm/ft²): 30 Backwash flow (gpm/ft²): 30	High purity copper/zinc granules that use redox (exchange of electrons) to remove chlorine and heavy metals. KDF55 is 50% copper and 50% zinc. This grade of KDF is most often used for chlorine and heavy metals reduction. It also has bacteriostatic properties. Has an unusually high flow rate, but also requires a strong backwash stream. Cannot be used in “aggressive” water and is often preceded by some form of neutralization.
KDF85	Density (lb/ft³): 171 Bed depth (inches): 10+ Service flow (gpm/ft²): 15 Backwash flow (gpm/ft²): 30	High purity copper/zinc granules that use redox (exchange of electrons) to remove chlorine and heavy metals. KDF85 is 85% copper and 15% zinc. This grade of KDF is most often used for iron, manganese and hydrogen sulfide reduction. It also has bacteriostatic properties. It has an unusually high flow rate, but also requires a strong backwash stream. Cannot be used in “aggressive” water and is often preceded by some form of neutralization.
Manganese Greensand	Density (lb/ft³): 85 Bed depth (inches): 30-36 Service flow (gpm/ft²): 2-5 Backwash flow (gpm/ft²): 12-15	Manganese greensand is a purple-black filtration medium made from naturally occurring greensand coated with manganese. It serves as a catalyst to precipitate hydrogen sulfide, iron and manganese. It can be continuously regenerated with chlorine and/or a purple liquid called potassium permanganate, or it can be intermittently regenerated with potassium permanganate alone.

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MTM	Density (lb/ft^3): 27 Bed depth (inches): 24-36 Service flow (gpm/ft^2): 3-5 Backwash flow (gpm/ft^2): 8-10	MTM is a granular manganese dioxide filtering medium that works in much the same way as manganese greensand and is regenerated also with chlorine and/or potassium permanganate. The main difference is that it is lighter and therefore can be backwashed more easily and has a higher service flow rate.
Multi-media (multi-layer)	Density (lb/ft^3): 92 Bed depth (inches): 36 Service flow (gpm/ft^2): 10 Backwash flow (gpm/ft^2) 15	Multi-media filters consist of several layers—usually three to five—of different media. The media are loaded by density—the most dense in the bottom of the tank, the least dense on top. This produces a filter with excellent flow rate and and relatively easy backwash properties that will filter down to ten microns. The most common media mix is (top to bottom): anthracite, filter sand, garnet 30 X 40, garnet 8 X 12, and gravel. This is a typical mix, though many others are common.
Pyrolox	Density (lb/ft^3): 125 Bed depth (inches): 24+ Service flow (gpm/ft^2): 5 Backwash flow (gpm/ft^2): 25-30	Pyrolox is a mined ore—manganese dioxide—used for manganese, iron and hydrogen sulfide reduction. Like Birm, greensand, and MTM, it acts as a catalyst to oxidation. Waters low in dissolved oxygen can use the catalytic properties of Pyrolox. It must be backwashed aggressively, although no regenerant is needed. The leading causes of filter failure when using Pyrolox are inadequate backwashing and low dissolved oxygen.
Sand	Density (lb/ft^3): 100 Bed depth (inches): 18-30 Service flow (gpm/ft^2): 3-5 Backwash flow (gpm/ft^2): 15-50s	Filter sand is naturally occurring sand that is high in silica and low in calcium. It is graded and washed. It can be used independently or as part of a multi-media filter. Sand filters are believed to be the oldest man-made filters and they imitate a common natural filtration technique.