

FILTER CARTRIDGES

The Basic Types, Materials and Applications for Various Filter Cartridges.

The following is some basic information compiled from industry experts at diverse companies. Additional information is available at the contact information provided.

Granular Activated Carbon (GAC)

Materials: GAC, usually derived from lignite coal or coconut shell and encased in a polystyrene or similar shell.

Approximate Replacement Time: Cannot be stated due to infinite variety of contaminants; however it can be estimated to last 6 months.

Best Applications: Best in the reduction of chlorine, organic chemicals, taste and odor.

Best Use: Residential.

How do they work? Contaminants are adsorbed into the porous structure of the carbon or are converted by catalytic action to less undesirable compounds.

What do they eliminate?

Chlorine and organic chemicals.

Uniqueness: They remove chemicals dissolved in the water rather than solids suspended in water.

Specifications: Primary consideration is flow rate, since excess flow will prevent adsorption of all chemical contaminants.

Other Comments: Temperature limits depend on the types of materials used to contain the carbon. Typical limit is 125° F.

Information provided by Alamo Water Refiners. Alamo may be contacted at 210-677-8400; www.alamowater.com.



Extruded Carbon Block

Materials: Virgin activated carbon powder, thermoplastic binder and specialty adsorbents such as zeolites or oxidizing filtration media.

Approximate Replacement Time: 2,500–150,000 gallons, depending on formulation type and overall filter dimensions (OD, length, etc.).

Best Applications:

Potable water: EOT, POU, In-line, counter-top, RO systems.

Best Use: Residential, light commercial, bottled water.

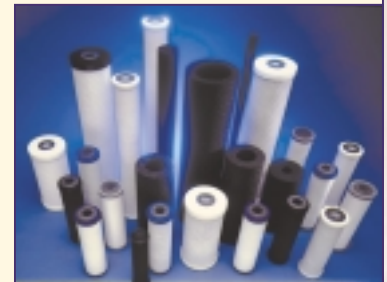
How do they work? Using radial flow (from the outside to the inside). A radial flow filter has nearly 15 times the external surface area of an axial flow filter, which runs in one end and out the other.

What do they eliminate? Depending on formulation type: VOCs, THMs, particulates, cysts, turbidity, heavy metals (lead) and chlorine.

Uniqueness: Filters are manufactured using proprietary solid state extrusion process. There is no release of carbon fines. No channeling fluidizing or bypassing. Low pressure drop, low binder content, high dirt capacity and a low cost.

Specifications: Maximum operating temperature is 125° F. Maximum differential pressure is 100 psid. Maximum operating pressure is 250 psig. Collapse pressure is 200 psid.

Information provided by KX Industries. KX may be contacted at Attn: Customer Service, 269 S. Lambert Rd., Orange, CT 06477; directorofsales@kxindustries.com.



Pleated

Materials: Media are resin impregnated cellulose, polyester or polypropylene with polypropylene cores and polypropylene or vinyl plastisol end caps.

Approximate Replacement Time: Depends on the water quality, turbidity, suspended solids, dirt, silt and other particles; use pattern; and volume.

Best Applications: Filtering water or other compatible fluids for removing sediment.

Best Use: Residential, commercial, industrial.

How do they work? Screening/sieving action, typically sealed in housing via "knife-edge" or v-bead seal.

What do they eliminate? Suspended particles in a nominal size range from approximately one micron and larger.

Uniqueness: Typically a lower cost, larger surface area and greater dirt-holding capacity.

Specifications: Flow rate, pressure drop, temperature, fluid compatibility, size requirement 2½ inches × 10 or 20 inches or 4 inches × 10 or 20 inches.

Other Comments: Good low-cost solution to sediment filtration requiring nominal reduction. Can treat high volumes of water/fluid with minimal pressure drop at high flow rates.

Information provided by USFilter, Plymouth Products. USFilter may be contacted at 800-222-2558; www.plymouthwater.com.



Spiral Wound

Materials: Polypropylene, cotton, polyester, fiberglass.

Approximate Replacement Time: N/A

Best Applications: Oil and water filtration.

Best Use: Residential, commercial, industrial, small municipal, bottled water.

How do they work? They entrap sediment.

What do they eliminate? Solids.

Uniqueness: Used with a wide range of media, center tubes, lengths, micron ratings.

Specifications: Solids content, pressure, temperature.

Information provided by Flomatic Systems. Contact Greg Willis at 352-465-2000; info@flowmatic.com; www.flowmatic.com.

Separation is the removal of a dissolved substance from a carrier fluid stream. Cartridge filtration typically is pressure-driven. Other types of filtration and separation devices may employ alternative driving forces: gravitational settling, centrifugal force, a vacuum, etc.

Ceramic

Materials: Kieselguhr clay—diatomaceous earth, a fossil substance, made up of tiny silicon shells left by microscopic, one-celled algae called diatoms. Incorporates Oligodynamic silver impregnated into a porous ceramic outer shell that can trap bacteria down to as low as 0.22 microns

Approximate Replacement Time: Lifespan depends on cartridge size.

The 2-inch cartridge lasts approximately six months or 600 gallons with carbon block and heavy metal reduction (lead) and 12 months without carbon block. The 2½-inch cartridge lasts about one year or 1,000 gallons with carbon block/ heavy metal media. Without carbon block, cartridge will last one to two years depending on water quality.

Best Applications: POU RO pre- and post-filtration for prevention of bacteria and protection for RO membrane, drinking water fountains and coolers.

Best Use: Residential, commercial.

What do they eliminate? Removes 100 percent *Cryptosporidium*, >98 percent lead, >99.99 percent *E. coli*, salmonella and shigella. Chlorine, taste, odors and organic and inorganic chemical reduction. Effective at removing *Giardia*, lead, iron and other heavy metals.

Uniqueness: Unlike other filters, a ceramic can be cleaned easily as the top layer of the ceramic and filtered contaminants are brushed off with a Scotchbrite pad. Cleaning the filter unclogs the filter and improves flow.

Specifications: Fits most 10-inch standard and "Big Blue" housings. Min. working pressure 10 psi; Max. working pressure is 125 psi. pH range of 5.5 to 9.5, and between 5° C to 38° C.

Information provided by Ceramic Filters Co., Inc. Contact James Webb at 888-236-8586; fax 517-467-4587; eramic@frontiernet.net.



Carbon Block photo provided by KX Industries. All other photos were provided by USFilter.