

Everpure® Precoat Filters

Precoat filters are an innovative water treatment technology developed by **Everpure®**, LLC. This technology is not related to industrial precoat filters like rotary drums. For a brief description of such filters please refer to the next page.

Everpure precoat filters innovatively combine sediment and carbon filtration in one cartridge with six times more filtering surface area than other systems of similar size, making it a popular choice for foodservices and residential water filtration.

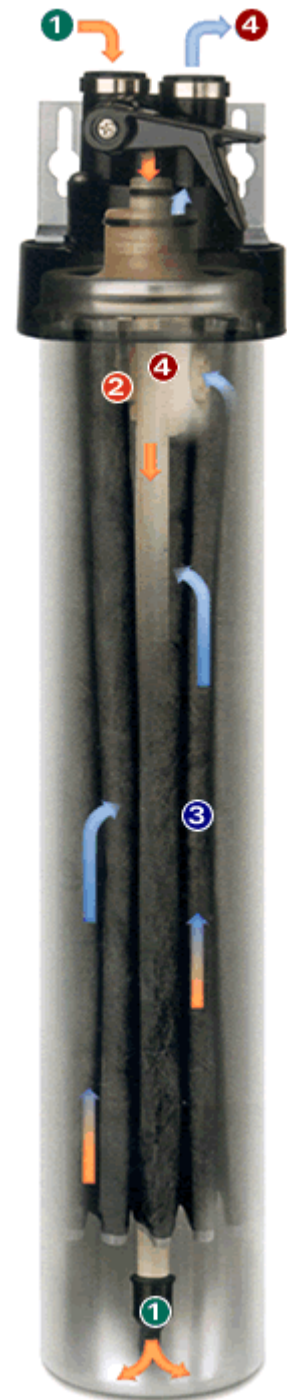
Each filter consists of a pleated membrane as well as a blend of very fine activated carbon called **Micro-Pure®**. The fine Micro-Pure® powder removes chlorine, taste, odour and colour from the water, while the pleated membrane offers superb sediment filtration rated at 0.5 micron absolute.

When a new precoat cartridge is installed, inflow water forces the fine powder to adhere onto the pleated membrane, forming a permanent layer (known as “cake” or precoat) of Micro-Pure® powder. This layer does not crumble or disintegrate and remains intact.

Everpure precoat filters are designed in a variety of shapes to accommodate different treatment needs, yet they all use a heavy-duty, aluminum cartridge housing to protect the system from splitting or bursting. The cans are lined with a food-grade polymer that prevents water from coming in contact with the aluminum. Another advantage of this design is the prevention of hand-contact and contamination during cartridge replacement.

The diagram on the right displays a cut-away of a typical Everpure precoat filter. Untreated inlet water flows into the cartridge (1) through a tubing and into the filter chamber. The water passes through the precoat layer (3) and gets treated from sediments, odour, taste, chlorine and harmful cysts like Giardia. The result is fresh-tasting water (4) that is safe for consumption.

Some Everpure precoat filters have an additional chamber for treatment of certain chemicals like volatile organic compounds (VOCs), trihalomethanes (THMs) and MTBE, a fuel additive. Nonetheless, all Everpure precoat models pass NSF Standards 53 and 42 which address the ability to remove harmful contaminants like lead, asbestos and cysts as well as the improvement of water aesthetics like taste and odour.



Precoat Filters in Industry

In industries and large-scale water treatment systems, precoat filtration is used to treat contaminated slurries. The main part of the filter is the rotary drum, a large metallic cylinder covered with a layer of permeable material called a precoat or a filter aid, typically diatomaceous earth slurry. A special type of precoat filters is the rotary vacuum drum filter featured in the schematic below. The precoat is the gray layer surrounding the violet rotary drum.

A layer of precoat first covers the rotary drum by soaking it in a sump. The inside section of the drum (outlet arrow on diagram) is under vacuum and that forces the precoat material to stick onto the drum surface. Contaminated slurry is then fed to the sump. The drum keeps rotating steadily and vacuum pump sucks the slurry through the drum. The precoat filters the insoluble contaminants and allows clear water to pass through to the filtrate-receiving tank.

As the precoat layer becomes saturated, it becomes necessary to remove it and use a fresh layer. This is achieved using a special blade on the filter called the doctor's knife that shaves off a thin layer of the spent precoat, thereby exposing a fresh layer to absorb more contaminants. The scraped layer (called a cake) flakes off and is discarded.

Precoat filters are commonly used for clarification of fruit juices, liquid recovery from brewery waste and filtration of sugar and molasses.

