



Biological Filter

- **Removes *B. globigii* endospores from water. Independent testing shows removal of greater than 99.99999% of the *Bacillus* spores**
- **Removes bacteria from water including: cholera, dysentery, Legionnaires, plague, and many others**
- **Removes protozoan parasites**
- **Removes toxic metals such as lead**
- **Shown in independent testing to remove over 99.99% of cysts and 99.9999% bacteria at EPA protocol concentrations**

The Innova Biological Filter provides for the removal of bacteria and protozoa from water of suspect quality. Can be used in conjunction with a disinfectant, if viral contamination is suspected.

The filters also provide a means to obtain in a portable unit; effective lead, chlorine, taste and odor filtration. If used in conjunction with a disinfectant, the filter removes residual disinfectant species.

Bacteria

Bacteria are responsible for many of the water-borne illnesses which still plague the world, including some of the most serious. Drinking water is a carrier for bacteria causing typhoid, cholera, leptospirosis and other diarrheic diseases.

Unlike carbon block filters, which may remove a percentage of bacteria in the water depending on the flow rate through the filter, the filtration technology in this Innova product is effective under actual use conditions.

The hollow fiber bundles used in the Innova Pure Water Biological Filter were originally developed for use in kidney dialysis machines, underscoring the reliability of this technology.

Giardia and Cryptosporidium

The flagellated protozoans *Giardia* and *Cryptosporidium* have been in-

creasingly implicated in water-borne disease outbreaks in recent years. These parasites exist in nature in a dormant form (cysts), which possess a thick wall protecting them from disinfectants.

Cryptosporidium species in particular, are especially resistant to disinfectant action because of their thick cyst walls.

In addition to filtering out protozoan cysts, the filters are also effective in removing free-swimming parasites which may occur in certain geographic locations.

Reliable Filtration

The effectiveness of microbial filters depends on the density and uniformity of the filter media. Less dense filters are able to hold more dirt and foul more slowly than those employing a tightly packed medium, at the expense of filter reliability. Some microbial filters fail due to an inability to precisely control manufacturing operations, and often show filter bypass when the flow rate exceeds even minimal values.

Innova filters are constructed from a more dense and uniform media, eliminating the possibility of filter breakthrough. The membrane used is manufactured into a bundle of tubes, each tube less than 0.5 mm in diameter. The large surface area of the hollow fibers, allows filtration of extremely small particles while

- **Insensitive to changes in flow rate or pressure**
- **Can be used with chemical disinfectants**
- **Effective against Giardia and Cryptosporidium**
- **Tested by an independent laboratory for lead reduction, with an average 97% removal over 20 gallons per element**
- **Reliable filtration of 0.2 micron particles**
- **Independently replaceable chemical and microbial filter elements**
- **Cyst / bacteria element treats up to 75 gallons (284 liters)**
- **Chemical element treats 20 gallons (75 liters)**
- **Meets NSF Class I chlorine reduction**

maintaining a low pressure drop over the extensive life of the product. Lower surface area carbon block filters must have larger pores (hence less reliability), or water cannot flow through the filter.

Chemicals are Optional

Filters which rely on chemical disinfectants for the treatment of protozoan cysts have disadvantages over filtration.

- Disinfectants leave a residual which may have adverse aesthetic or health effects.
- A disinfectant may be sensitive to the temperature or quality of the source water. Waters which are cold, or high in organic matter, will require a larger disinfectant concentration. Designing for these contingencies, means that a chemically based product may employ a much larger concentration than is required for disinfection under normal use conditions.

Realistic Claims

Innova Pure Water, Inc. is one of only three companies which have personal water bottles certified by the National Sanitation Foundation International (NSF) for aesthetic claims. It is our policy to only make claims for our products which are reasonable in light of their actual usage.

While no health related NSF standards currently exist for personal water bottles, in a stand-alone product the chemical removal element provides Class 1 performance for chlorine, taste and odor reduction claims under NSF Standard 42. In addition, an independent testing laboratory has tested the element for lead reduction, achieving an average 97% reduction over it's rated life.

The microbial removal element has been independently shown to remove greater than 99.99% of 3 micron Cryptosporidium surrogates and over 99.9999% of bacteria, under actual use conditions.

Adequate Capacity

The antimicrobial portion of the filter is designed to provide up to 75 gallons (over 400 bottles) of filtered water under normal use conditions, with silt free water. As the filter becomes fouled it will become more difficult to pass water through it, but the removal efficiency is unchanged through the life of the filter.

The chemical removal element within the filter will treat up to 20 gallons (over 100 refill bottles) of drinking water. To ensure the best tasting water; Innova recommends you replace your filter every 30 days, regardless of use.

An Attractive Product

In the action of protecting the user from protozoan contaminants, the filter will also remove small suspended particles. These particles, in particular aggregates of iron species, cause the filter to become stained a dark orange/brown color. We believe that the consumer will find the presence of this staining unappealing and worrisome, and have therefore surrounded the filter element with a shroud which hides the filter from view.

Throughout the life of the product, the filter will look clean and functional. The consumer will then rely on changes in the flow rate through the filter to determine when the microbial element needs to be replaced.

Innova Pure Water, Inc. seeks to present reliable information concerning the composition, properties and use of it's products, however; (1) All advice concerning selection and use of any products is provided at AT NO CHARGE AND WITH NO WARRANTY, (2) No warranty is made hereby; products described herein are warranted to conform to IPW's specifications only at the time of sale. All sales are subject to IPW's Standard Terms and Conditions of Sale.