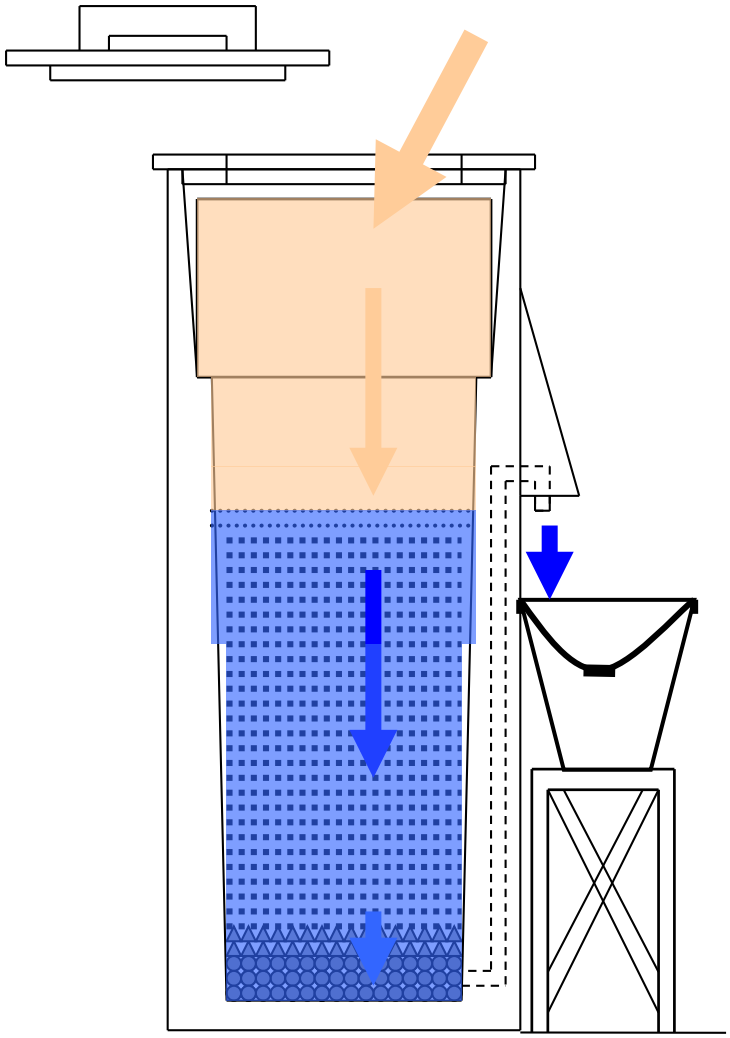


Household

Plastic BioSand Water Filters

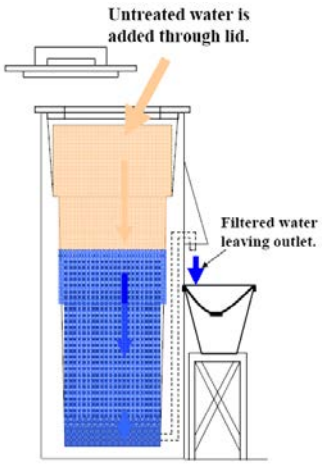
Vs.

Concrete BioSand Water Filters

January 2019

Dr. David H. Manz, P. Eng., AOE

Facts:

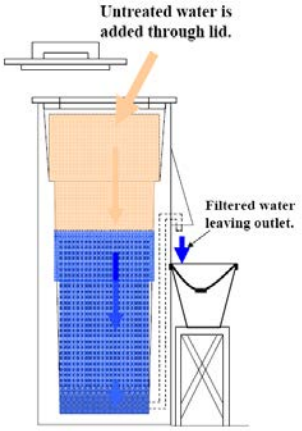


1. **The household concrete BioSand Water Filter and the household plastic BioSand Water Filter perform identically when correctly installed, commissioned, operated and maintained.**
2. **The plastic version of the BioSand Water Filter (such as the Cabin Clean Water Filter) is intended to be manufactured and distributed on a very large scale to reach, in a timely fashion, the billions of people around the world who need safe drinking water.**
3. **The greatest advantage of the concrete version of the household BioSand Water Filter over the plastic version is the very low capital cost to establish manufacturing facilities. This has allowed individuals and organizations the ability to take the technology to the remotest part of the world – with very good quality control.**
4. **The greatest disadvantage of the concrete version of the household BioSand Water Filter over the plastic version is that the manufacturing process is very slow.**

Facts – cont'd.

5. **The greatest advantage of the plastic version of household BioSand Water Filter is the ability to produce many thousands of filters per day at very low cost with very good quality control.**

6. **Plastic filters provide the best opportunities for the development of viable local businesses.**



7. **The greatest disadvantage of the plastic version of the household BioSand Water Filter is the very great cost in capitalization to produce a product with the type of quality control and low cost that should be expected of the plastic product. (I have considerable experience with most methods of plastic manufacture. Plastic rotational technology is adequate but unless the very best methodologies are used the product is of uneven quality, uses a great deal of fossil fuel in the form of propane or natural gas, uses a great deal more plastic than other forms of plastic manufacture such as injection molding and blow molding and is expensive to scale-up. Rotational molding was used by the author in the early stages of plastic BSF development.)**

8. **If both the concrete and plastic versions of the BSF are constructed and used in technically correct manners (and interestingly enough, very similar), identical performance can be expected.**