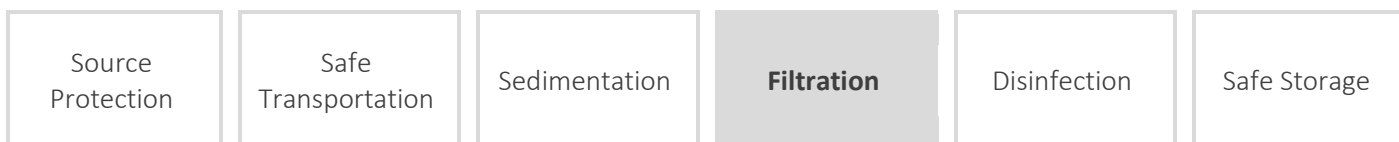


Concrete Biosand Filter



What is it?

A concrete biosand filter is a type of biosand filter housed within a concrete body. It is usually produced locally. Biosand filters (BSFs) are columns of finely crushed rock on which microorganisms are living. Water is poured into the top of the column and spends a period of time in contact with the sand. This allows the microorganisms living in the sand to remove pathogens from the water. When a new batch of water is poured in, water added earlier flows out.



Performance

Microbiological Effectiveness:

Parameter	Effectiveness
Bacteria	Effective (>90%)
Viruses	Somewhat Effective (>80%)
Cryptosporidium (Protozoa)	Very Effective (>99%)
Giardia (Protozoa)	Very Effective (>99%)
Helminths	Very Effective*

*Assumption based on pathogen size

Other Parameters

High removal of turbidity. Removes iron. Can be modified to remove arsenic (see Kanchan Filter). Not effective for most other chemical contaminants.

Source Water Requirements

Turbid water (>50 NTU) should be settled or strained before filtering.

Capacity

Treats 12–18 L per batch, and one to four batches per day.

Lifespan

Ten years or more.

Ease of Use & Acceptability

Operation & Maintenance

User pours water into the filter each day. Simple maintenance is required to clean sand when flow rate slows down.

Repair & Replacement

Lids and diffusers need replacement every few years.

User Considerations & Preferences

Requires that water to be added every day or two to develop and maintain the microbiological community.

Heavy and difficult to move, making it unsuitable for people who move often.

Feasibility

Availability

Concrete bodies can be made anywhere. The mold design for the square version is freely available from CAWST. The design for the round version is freely available from Bushproof. The design for a wood mold for the square version is freely available from O'Horizon. Making a steel mold for concrete BSF construction requires a skilled welder. Anyone can be trained to construct and install the filter.

Cost

US\$12–100

Size & Weight

Most common version is 0.9 m by 0.3 m. Empty filter body weighs 70–135 kg.

More Information

Details and references: www.hwts.info/products-technologies/d3df2470/concrete-biosand-filter

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