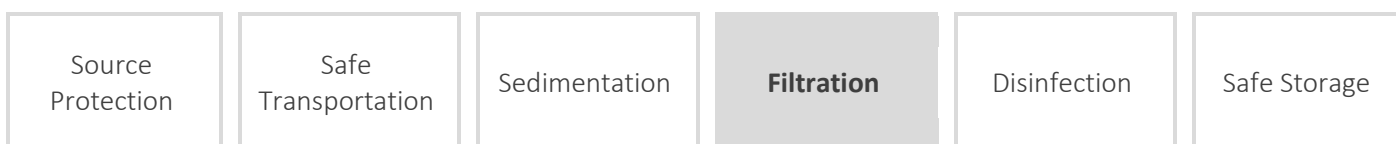


Kanchan Arsenic Filter



What is it?

The Kanchan Arsenic Filter (KAF) is a modified biosand filter with zerovalent iron (often in the form of rusty nails) added to the diffuser basin. Arsenic in the water gets adsorbed onto iron oxide (from the rusty nails) and then becomes trapped on the surface of the sand within the filter. Like other biosand filters, the body of the KAF can be made of concrete, plastic, or stainless steel. It contains a column of finely crushed rock (sand) on which microorganisms are living. The KAF removes microbiological contaminants through the same mechanisms as other biosand filters.



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

Somewhat effective at removing arsenic (>80%).

Source Water Requirements

Turbid water (>50 NTU) should be settled or strained before filtering. The KAF's performance is affected by pH, hardness, iron and arsenic concentrations.

Capacity

Treats one to four batches per day (12 L per batch for the concrete v10 model).

Lifespan

Nails must be replaced every 2-3 years.

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

Nails, lid and diffuser must be replaced over time.

User Considerations & Preferences

Water must be added every day or two to develop and maintain the microbiological community. Filter is heavy and difficult to move, making it unsuitable for people who move often.

Feasibility

Availability

Concrete bodies can be made anywhere with required materials and skills. Plastic bodies need a centralized manufacturing facility, or can be imported.

Cost

US\$12–100

Size & Weight

Average size is 0.9 m tall by 0.3 m wide. Empty filter cases weigh 70–135 kg (concrete body) or 3.5 kg (plastic body).

More Information

Details and references: www.hwts.info/products-technologies/ccfdb7b/kanchan-arsenic-filter

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