

Water filter

Country of origin | United States of America

Health problem addressed

“Infectious diseases caused by pathogenic bacteria, viruses, protozoa and helminthes are the most common and widespread health risk associated with drinking water.” (WHO, 2004). In Ghana where the ceramic pot filter is made, 50% of people lack access to improved water supply. Ghana has the 4th lowest worldwide rate of sanitation coverage.

Product description

The filter unit consists of a fired clay pot filter element, a plastic bucket storage unit, a “ring lid” to support the ceramic pot, a tap and a cover lid. These filters are made from red clay and wood saw-dust or rice-husk which gets mixed, pressed in mold and fired in a kiln.



Product functionality

Particles, bacteria, guinea worm cyclops and protozoa are removed by physical straining, and also by the mechanisms of sedimentation, adsorption, diffusion, inertia, and turbulence. The filter element is treated with colloidal silver which may act as a bactericide and viricide.

Developer's claims of product benefits

The ceramic pot filter, made of terracotta clay, can be produced in most countries around the world because of the simple component parts and the universality of clay and combustible material inputs. Moreover, there is the potential to create local, self-sustaining businesses from this endeavor.

Operating steps

1. Settle turbid water in a storage vessel before filling the ceramic pot; 2. Keep the ceramic pot filled to the top. This will improve filtration rate; 3. Clean filter with brush provided when flow rate becomes too slow; 4. Clean storage unit with soap and filtered water if necessary. Disinfect with chlorine bleach, iodine or boiling water.

Development stage

The product is being manufactured in >20 countries. In Ghana, in 2007, it has been approved by UNICEF and the government for emergency distribution during a flood emergency. In 2008, it was approved for emergency distribution during a guinea worm outbreak. The product is being locally manufactured and sold in the region with the highest rates of diarrhea in Ghana. The technology has become known through efforts of several international aid organizations and the work of several renowned academic institutions.

Future work and challenges

In Ghana, the current challenge is to build a self-sustaining enterprise. This effort has taken 6 years, and there are still struggles to reach those who lack improved water at an affordable price. Willingness to pay ranges from \$2 - \$15, but the product price is \$25. Moreover, emergency distribution of the product is free, which distorts the market further, even while making the product familiar to a wider customer base. There is a need for a reliable stream of buyers, support for technical training, human resources and financial management and support for further R&D to improve the product.

User and environment

User: Self-user, family member

Training: Each filter comes with an educational sticker. Hands-on demonstration training takes 1 hour in groups.

Maintenance: Self-user

Environment of use

Requirements: This filter removes microbes from unclean water. It does not require any power supply, internet, cell phone, etc. . There is no specialized personnel needed to operate the filter.

Product specifications

Dimensions (mm): 500 x 42 (diameter)

Weight (kg): 7

Consumables: The ceramic pot filter element needs replacement after 2-3 years.

Life time: 3 years

Retail Price (USD): 25

List price of consumables (USD): 8 (to replace the pot element after three years)

Other features: Portable and reusable.

Currently sold in: The filter is commercialized in certain countries (Guatemala, Cambodia, and largely promoted by NGOs in other countries)

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http://www.who.int/medical_devices