

# Silver-Enhanced Ceramic Water Filter

## Description

Filtrón, the Silver-Enhanced Ceramic Water Filter (Figure 1) promoted by ClaySure and Potters for Peace (PFP), is a simple, affordable, and effective solution to the global problems of waterborne disease. The technology is so simple a small child can use it (Figure 2), so affordable those living on \$1 per day can buy it, and so effective it can remove pathogens as small as 1  $\mu\text{m}$  from contaminated water. Through the mechanisms of screening and silver-bacterial inactivation, Filtrón effectively removes from water 99.98% of *E. coli* and total coliforms. Small pores in the ceramic body allow water (but not most pathogens and dirt) to filtrate through at a rate of 1-2.5 liters per hour – enough water to sustain a family of six. In addition to its screening pores, the filter is coated with colloidal silver, a bacteriostatic agent which will destroy harmful bacteria on contact.

Filtrón is currently manufactured in 19 countries, including Cambodia, Nicaragua and Kenya. The simplicity, affordability, and effectiveness of Filtrón technology make it an excellent solution for families around the globe who are without access to potable water.

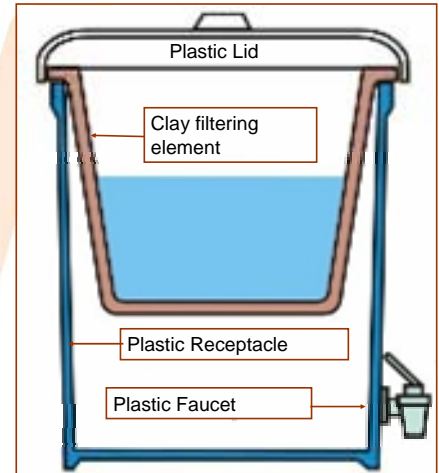


Figure 1: The Filtrón filtering system.



Figure 2

## Initial Approach

Though it was not widely distributed until 1998, Filtrón technology was invented in the 80's by Guatemalan chemist Fernando Mazariegos. PFP's initial implementation model was to teach small-scale potters around the world to hand-build filters for their communities. However, with time, PFP developed a hydraulic press (Figure 3), which, by reducing variability, significantly improved the quality of the filter. Development of the press also increased productivity, augmenting the impact of the filter by increasing the number of families that had access to the technology.

## Standardization

In order to manufacture truly reliable 'ceramic weapons of mass bacterial destruction,' it was imperative for PFP to come up with a way to standardize filter production around the globe. With standardization in mind, PFP introduced the use of a press, cement mixer, hammer mill, downdraft (fuel-efficient) Mani Kiln, and sieves to their production sites. Flow rate tests were also introduced as a system of ensuring that water has enough contact time with the silver, that the filter is not cracked, and that the filter will produce a sufficient amount of water to sustain a family of six (1-2.5 liters per hour.) These standardizing modifications have given Filtrón the excellent reputation of a simple, affordable, and effective solution to waterborne disease worldwide.



Figure 3

## Future plans

Filtrón technology is spreading quickly; PFP has plans for the establishment of several new factories over the next few years. PFP is also looking at simple and inexpensive methods of adding virus removal to Filtrón's already impressive resumé. The filter factory in Kenya will be the first to offer this benefit.

