



# PELITA INDONESIA ORGANIZATION

Community Development • Disaster Management • Education & Training

Drinking water is becoming rarer with the increasing human population, and more difficult to offset the environments basic needs. Deforestation is not being controlled so it interferes with the availability of raw water. These conditions are exacerbated with contamination which is rising to the surface due to mismanagement at the domestic, industrial and agricultural levels.

Data from combined from the Millennium Development Goals (MDGs) in 2007 and from a Basic Human Services study that same year state that only 52.1% - 71.7% of Indonesia's population has access to drinking water. Of these, 99.2% is known to treat their drinking water by boiling (Basic Human Services Study 2007). However,

because proper treatment methods are not matched with correct storage methods recontamination occurs 47.5% (Department Health/IPWR/Basic Human Services) of the time leaving E. coli remaining, whereas if the treatment is done correctly people suffering from diarrhea can be reduced to 39% (Department Health/IPRW/Basic Human Services).

*(Source: Department Health Republic of Indonesia - Directorate General of disease control and environmental sanitation)*

## What is a Ceramic Filter?

Ceramic filters are a tool to process raw water into safe and healthy drinking water. The shape resembles a bucket with a diameter +/- 30 cm and +/- 30 cm tall made from a mix of clay and rice husks that have been crushed into a powder and screened. This mixture is then molded using a manual hydraulic press and aluminum mold. After the clay mixture has been molded, they are baked in a kiln until the temperature reaches +/- 800°C so that the grain mixture is burned away leaving small pores that allow the water to flow through the clay. After firing, the pots are coated with colloidal silver, which functions as an effective bactericidal agent. This mixture results in a water filter capable of producing 1.5 - 2.5 liters of clean drinking water per hour without boiling any water.

These ceramic filters can be used for 2 years then must be replaced; however, the life of the filter can be decreased if broken or if the pores become clogged due to very dirty raw water.

## Ceramic Filter Background in the World

In 1981, Dr. Fernando Mazariegos from Central American Industrial Research did research in Guatemala. His research was funded by Interamerican Bank with the goal of developing cheap filters that could be made by ordinary citizens to provide drinking water to the needy.

*(Source: Potters for Peace / [www.pottersforpeace.org](http://www.pottersforpeace.org))*

In 1990, this technology was brought to Cambodia by Resource Development International ([www.rdic.org](http://www.rdic.org)). Consultants from Pelita Indonesia then brought the technology from Cambodia to be used in Indonesia.

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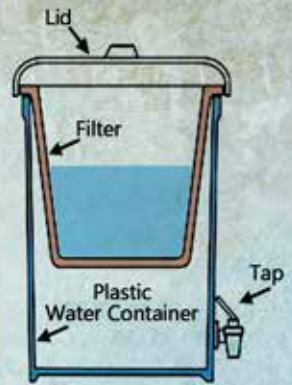


## How does the Ceramic Filter work?

Raw water is inserted into the opening of the ceramic filter and little by little water seeps into the pores of the filter, which is covered with silver, a germ fighting material. After a permeation between 1.5 - 2.5 liters per hour, the water is collected in a special bucket that is safe for food and beverages. This ceramic water filter is capable of filtering 99.999% of harmful parasites and bacteria from the raw water.

## Why a Ceramic Filter?

The Ceramic Filter is an effective and efficient tool to process raw water into drinking water without a boiling process. This simple technology has been successfully tested in both private and national laboratories to produce safe and inexpensive drinking water. Simply by pouring water into the filter and waiting a few moments, the water is ready to be consumed by your entire family. Diarrhea-causing germs and bacteria in the raw water supply are removed so that the resulting water is safe for consumption.



## Is the Ceramic Filter cheaper than boiling or buying bottled water?

When compared with boiling water, which requires LPG, kerosene or firewood for fuel, or buying bottled water all are more expensive. Ceramic water filters are a cheap and affordable alternative technology in treating drinking water for the people of Indonesia. When the price is calculated out over a life-span of 2 years, the cost for treated drinking water is less than 1 cent per liter, a fantastic price in view of today's high cost of living.

## Are the Ceramic Filters safe for children, pregnant women and the entire family?

Yes! Because the water has been successfully treated for consumption using the Ceramic Water Filter and tested at laboratories adhering to the standard for the Ministry of Health Republic of Indonesia.

## Are there advantages to using a Ceramic Filter?

1. Filtered drinking water is ready to drink
2. Kills 99.99% of germs and bacteria causing diarrhea
3. Tested in the laboratory and is recognized by the Ministry of Health RI
4. Does not use electricity, firewood, kerosene or gas
5. Drink directly from the special bucket
6. Use the ceramic filter for up to 2 years
7. Affordable price

## Has the Department of Health approved the use of Ceramic Filters?

Yes, In 2008, the Ministry of Health issued the national policy on Community-Led Total Sanitation (STBM), General Guidance Handbook (Pedum), and Directive Implementation and Technical Guidelines on the Management of Water Supply and Household Food (PAMM RT). Ceramic Water filters are one of the approved alternative drinking water systems.

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