The Ceramic Filtration System - Detailed View

Two common resources are collected and used as the primary ingredients in our ceramic Pots.
Clay and rice husks.
Clay is an abundant resource in Cambodia. By breaking up sun dried bricks, and hammering them in a mill, we produce a fine clay powder. Similarly, we take a byproduct of rice, the hulls, which are readily available, and hammer and sift them to the appropriate size.

These two ingredients (18% rice, 82% clay) are mixed with water in a modified mortar mixer then kneaded into 10kg pieces.

The 10kg clay mixture is then put in an aluminum caste and pressed in either a manual or hydraulic press to form the water pot shape.

The pots are stamped to track productivity and viability, cleaned and then air dried.

After they are dried they are fired in a traditional kiln. Temperatures are slowly raised to 832 degrees centigrade.

The pots cool and then undergo final testing of flow rate to make sure the pores in the pot are big enough to allow for fairly quick seepage, yet small enough to effectively filter harmful bacteria.

When tests are complete the pots are coated inside and out with colloidial silver to add an additional Protective bacterial killing component.

Frequently Asked Questions

How are germs killed in this ceramic pot?
Answer: Two processes are at work. Because the mixture of rice and clay produce small micropores, parasites, amoebas, and large bacteria cannot flow through due to mechanical processes. Simply put, water can fit through the pores, most disease causing organisms cannot. The coating of colloidal silver adds a chemical process to stop other bacteria. Together, this system eliminates 98% of the harmful diseases present in surface water.

Question: How long does this filter last?
Answer: A study was done at MIT that showed that the filter maintained its effectiveness for over one year, however testing was stopped after one year. It is estimated that the filter will last with repeated daily use long after one year.

Question: How does the ceramic pot become so porous?
Answer: Ceramics are inherently porous. Our specialized process of firing the clay and rice husk mixture causes the rice husks to completely burn away in the intense heat of the kiln. When the rice husks burn out of the mixture, micropores remain in the newly created ceramic filter which allow for a perfect seepage of water minus the harmful microbes that once infected it.

Question: What maintenance does the ceramic filter require?
Answer: If the water is turbid or cloudy or has a lot of solids in it then it needs to be periodically cleaned with a soft bristle brush. RDI recommends a monthly cleaning unless visual buildup of solids is identified. Solids such as leaves or other biomass from a highly contaminated source should be cleaned more frequently.

Question: How do you know that it works in the village? Do families really use this?
Answer: Part of the commitment RDI has for maintaining a its community focus for sustainable change is to insure the viability of the filters. The filters are tracked, and periodically RDI goes back to the community and runs tests on the filters to verify that the filters are still giving families safe, pure drinking water. Projects at RDI are ONGOING, we cherish the opportunity to impact the lives of families. If something is working, we test it later to make sure it is still working. If a project is NOT working we look for new solutions.