

AFFORDABLE SOLAR SOLUTIONS

AquaPak, a Low Cost Solar Water Pasteurizer

The Solar Water Pasteurizer, called the **AquaPak**, which has been sent to approximately 70 countries, will cost less than two dollars per unit to manufacture in third world countries. The AquaPak has the potential to save **thousands** of lives and significantly reduce illness among rural populations in nations where access to safe **drinking water** is scarce, because of pathogens (bacteria, viruses, and parasites, etc.) like cholera and salmonella that are found in the water.

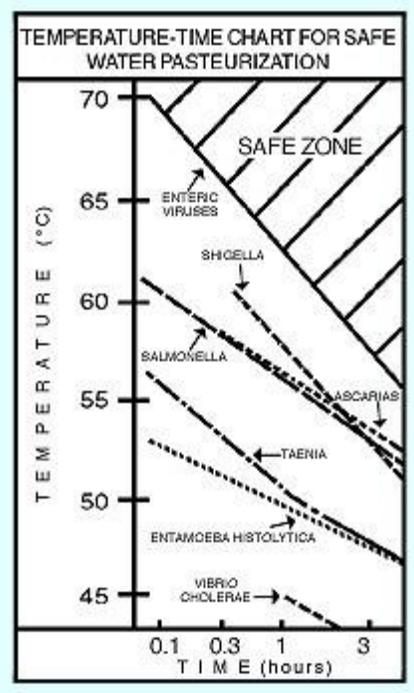
Pasteurization technology was discovered by Louis Pasteur in 1867, but to date efforts to develop a small, extremely low cost, easy-to-use solar pasteurizer have failed to yield a viable solution for mass distribution. The AquaPak represents a significant breakthrough in this technology. The AquaPak is made from low cost polyethylene plastic (also used in food preparation boiling bags) with UV inhibitors added and air-filled bubble pack sheeting (originally developed for the packing industry).

Using only solar energy, the AquaPak can heat water to temperatures beyond 65 degrees Celsius, a temperature that will kill all waterborne pathogens (bacteria, viruses, parasites). The edges of the plastic layers are bonded using tapered seals so the AquaPak can pass a 10 foot drop test.

In tests conducted by BioVir Laboratories, San Francisco, CA, on virus contaminated water and by Environmental Engineering Laboratories, San Diego, CA, on bacterial pathogens, the AquaPak eradicated over 99.99% of the pathogens present.

Designed to be mass produced at independently owned manufacturing facilities in the tropical developing world, the AquaPak can be manufactured for less than \$2.00 US. The AquaPak employs a reusable sealed glass tube indicator-called a WAPI-filled with colored wax that melts when heated to the required temperature of 65 degrees C.

Depending on the availability of sunlight throughout the day, an AquaPak can produce up to **3 gallons (maximum) of water per day, enough safe drinking water for a family of four.**



Orange wax indicator as viewed through bubble insulation. When orange color disappears, the required temperature has been reached.



Orange wax in a sealed glass cylinder (WAPI) fits into the cap enclosure. The wax melts at a specified temperature to indicate the start of the pasteurization process.