Smart Electrochlorinator 200

Health need

Safe drinking water is essential to good health, but in developing nations, water often comes from unsafe and inconvenient sources. The World Health Organization reports that 880 million people worldwide rely on unimproved water sources for their drinking water (e.g., surface water such as lakes, rivers, and dams, or from unprotected dug wells or springs). In rural areas around the globe, eight out of ten people are without access to improved drinking water.

PATH has been investigating ways to increase access to safe water at the community level, and chlorine has been shown to be one effective treatment method.

Technology solution

In collaboration with Cascade Designs, Inc. (CDI), Seattle,WA, PATH worked to develop a prototype of a portable, battery-powered, easy-to-use device that creates a concentrated chlorine solution using salt, water, and a power source (in this case, a car battery). Iterations of the electrochlorination prototype yielded the Smart Electrochlorinator 200, or SE200. A little larger than a soda can, the SE200 operates using a single push button. Two white lights indicate the device is working and reinforce with users and observers the creation of the chlorine solution. A purple light indicates whether or not enough salt is in the solution, and a red light indicates whether the battery needs to be charged. A seven-minute run cycle produces enough chlorine to treat up to 200 liters of water. The SE200 also has the flexibility to allow a user to easily measure smaller doses to accommodate a variety of water container sizes.

The "smart" circuitry in the device measures changes in water chemistry to deliver consistent concentrations of chlorine for accurate dosing without complex monitoring or calculations. The device and its components are portable and easy to set up at most water sources including water trucks, boreholes, and dug wells. Since chlorine is available on demand, there is no need to store or transport the chemical and no risk of chemical degradation over time.

Current status and results

PATH's community water projects have helped PATH and CDI to optimize the product for the developing world. Field trials have tested the device in multiple settings and have explored multiple uses for the device. In Ghana, Mali, Niger, and Zimbabwe the device was used by nongovernmental organizations and community water committees to offer treated water at minimum costs. Small business kiosks that sell treated water have tested the SE200 in Guinea, India, Kenya, Mali, and Tanzania. The device has been used to aid a water business franchise in Nairobi, Kenya. Schools and community centers have used the device for water treatment in Nepal. In Thailand, a joint US/Thai military operation tested the device for humanitarian assistance and disaster relief. Additional activities are under way to finalize the commercialization of the SE200, aid in scaling up the device, and expand its use to more locations, ultimately increasing the access of safe water to families with the greatest needs.

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The SE200 produces enough chlorine to treat up to 200 liters of water.

"Water and sanitation is one of the primary drivers of public health... Once we can secure access to clean water a huge battle against all kinds of diseases will be won."

Dr. Lee Jong-wook, Director-General, World Health Organization

Availability

For more information regarding this project, contact info@path.org.

Donor support

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