

# SUPER COOL(ER)

Welsh startup Sure Chill has developed a cooler that uses the properties of water to keep its contents cool for around 10 days without electricity. This is ideal for storing items such as vaccines where electricity sources are unreliable.

Renewable energy engineer Ian Tansley found inspiration for his invention when he was explaining to a friend how fish could swim under the surface of a frozen lake in North Wales. Water above or below 4° C always rises to the top, forming ice on the top of lake or, conversely, creating the bubbles that rise to the top of a boiling pan of water. It means that all the water beneath the ice is 4° C – which happens to be the perfect temperature to store food, beverages and life-saving vaccines.

Every year, billions of pounds are spent on vaccines for the developing world, but many of those are wasted because they are not kept at a suitable temperature. Heat is a problem—but so is overcooling; a significant proportion of vaccines are destroyed when they are packed in ice and exposed to subzero temperatures.

Conventional refrigerators work in short constant cycles. They pump coolant fluid through heat-exchanging pipes to suck heat out of the system in response to signals from a thermostat. To do this, they need a steady supply of current. The Sure Chill fridges only connect to a power supply or use a solar panel to create the ice, and to 'recharge' it.

Because they do not need a constant electricity supply, the Sure Chill fridges can top up their ice levels when electricity is available or cheapest. While the refrigerators currently cost more than £1,000, the company says that prices are expected to fall as production increases.

The Bill and Melinda Gates Foundation has spent years trying to cure preventable diseases in the poorest countries but often has problems with vaccine distribution without proper refrigeration.

The Foundation donated over £1 million to Sure Chill to develop a specific device for the vaccine cold chain from an original idea to proof of concept.

Last year, Sure Chill made more than 1,000 vaccine refrigerators and has had orders from more than 45 countries. Its customers include UNICEF, the child welfare arm of the UN.

The company has recently signed a licensing deal with Indian white goods firm Godrej with ambitions to enter new, broader commercial markets.

Read more at [www.surechill.com](http://www.surechill.com)



**A Sure Chill vaccine refrigerator donated by UNICEF at a health centre in the Philippines**  
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