

## Water Blows Hot Air

The sweltering heat of dry regions is not only uncomfortable but can lead to illnesses. To improve living conditions, cooling solutions—which require chemical refrigerants, like Freon, or expensive, polluting, and energy-consuming compressors—are used. A new cooling process has now emerged, however, which uses a small amount of the most abundant fuel known to man—water. The process is embodied in the **Coolerado Cooler**, an air conditioner that delivers cold, dry air without a compressor or chemical refrigerants and uses 82% less power than a standard vapor compression system.



Developed by a group of researchers at Idalex Technologies, Arvada, Colo., this product rejects heat from one location where it is not wanted and transfers it to another, just like refrigeration. It uses the Maisotsenko thermodynamic cycle, which capitalizes on the psychrometric energy found in our atmosphere. The cycle captures this energy by exploiting the latent heat of evaporation without adding humidity to the building being cooled.

Except for a fan to move the air across the Coolerado heat exchanger and into the building, the cooler consumes no electricity. After fresh air enters the cooler from the supply side, heat is removed by evaporating water from one side of a plate heat exchanger, pulling the heat away from the air on the other side. The rejected heat is then carried into the atmosphere outside the building.

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