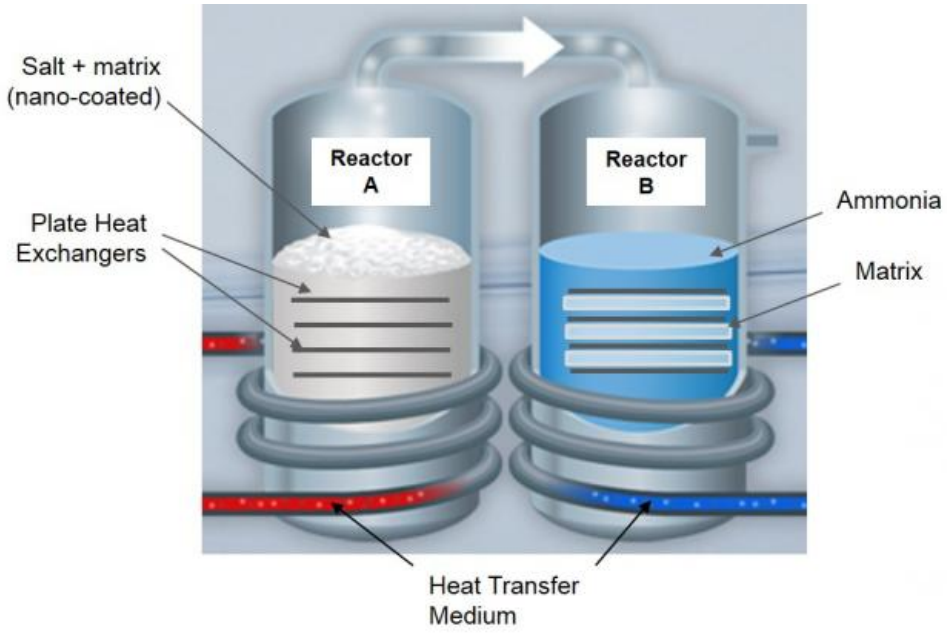
Energy – High-efficiency heating

August 4 2016, by Ron Walli



The SaltX heating system offers better efficiency than today's best furnaces and a potential payback of just three to four years. Credit: Oak Ridge National Laboratory

Salt and ammonia are key ingredients of a high-efficiency natural gas-fired heat pump system being developed by researchers at Oak Ridge National Laboratory, Rheem and ClimateWell.

Potentially, the SaltX system could provide 43 percent greater efficiency than today's best furnaces and maintain its rated capacity to outdoor

temperatures of minus-4 degrees Fahrenheit.

"The innovative approach of this system is that the salt is embedded in a matrix treated by nanoparticles, allowing it to crystallize during the desorption process," said ORNL's Kyle Gluesenkamp, who leads the project. The salt and ammonia are housed in an outdoor unit with a water loop connecting to the indoor central air duct heat exchanger.

This design results in a much higher energy density, lower cycle times, smoother output and higher efficiency at lower cost. The system, expected to provide a payback of three to four years in some climates, is also more compact than competing heat units.

Provided by Oak Ridge National Laboratory

Citation: Energy – High-efficiency heating (2016, August 4) retrieved 28 April 2024 from https://phys.org/news/2016-08-energy-high-efficiency.html