

Dissolving salt used to cool buildings

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Researchers have developed a system that uses endothermic dissolving of a salt in water to cool its immediate surrounding area. Solar energy can then regenerate the solute and means the cyclic system can work without requiring an electricity supply, making it well-suited for users in remote areas.

The system has two stages. Firstly, dissolving ammonium nitrate salt in water in a metal cup, which requires energy. This energy is drawn from the environment, cooling the air surrounding the cup as well as the solution. Secondly, regenerating the solute by evaporating the water. The solution is put onto the surface of a 3D structure, which when exposed to sunlight offers a large area over which the solvent can evaporate. This leaves behind a crystalline salt layer on the surface, from which crystals can drop-off over time, to be collected underneath the structure for re-use.

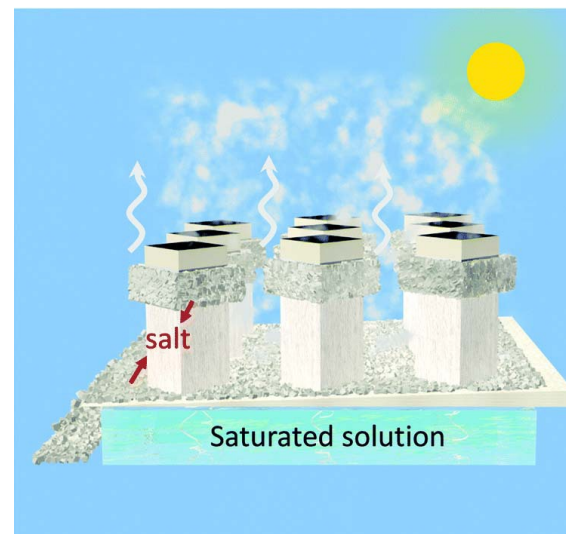


Diagram of the solute regeneration using evaporation with the sun

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1. What is an endothermic reaction?
2. Explain why the 3D structure has a large surface area.
3. Explain why the system could be used to cool buildings in remote areas.

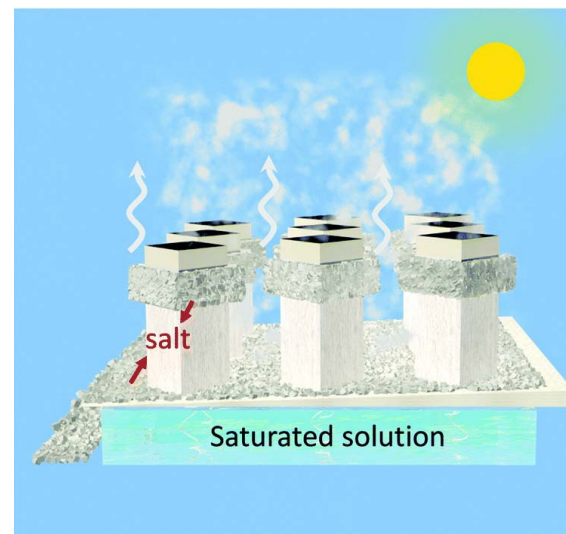


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