TECHNOLOGY

Novel Working Pairs for Refrigeration and Heat Pumps

OVERVIEW

Absorption/adsorption refrigeration and heat pump systems are usually powered by low grade heat instead of electricity. These systems have drawn increasing consideration in recent years due to the soaring price of fossil fuels and environmental concerns over traditional refrigerants used in vapor compression systems. However, the performance of these absorption/adsorption systems is critically dependent upon the chemical and thermodynamic properties of the working fluids used in the absorption cycle.

Researchers at the University of Maryland have designed a novel type of refrigerant/absorbent working pairs for application in absorption/adsorption refrigerants and heat pumps. In this technology, the two immiscible fluids, refrigerant and absorbent, form stable and isotopic mixtures in combination with surfactants. The microstructures formed have improved performance and less volatility when compared with commonly-used absorption/adsorption refrigerants such as water, ethanol, and ammonia.

Advantages:
-Environmentally friendly and energy saving
-The absorbent is not volatile in the generator
-Improved performance over commonly used refrigerants in absorption/adsorption heat pumps

Application:
-Heating and air conditioning

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Additional Information

INSTITUTION

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PATENT STATUS

Patent(s) pending

LICENSE STATUS

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CATEGORIES

- Industrial Processing

EXTERNAL RESOURCES

PS-2010-101