



## TECHNOLOGY

# Novel Phase Change Material Microcapsules

## OVERVIEW

Phase change material (PCM) microcapsules are granular substances with core and shell structures, where PCMs compose the core of the capsule. Fluids containing PCM microcapsules have received increasing attention in thermal management applications due to their ability to absorb and release large amounts of heat during phase change. However, the thermal conductivity and physical strength of current state-of-the-art microcapsules are not capable of making high performance heat transfer fluids.

Researchers at the University of Maryland have proposed a novel design using a multi-layered shell to improve the thermal properties and physical strength of PCM microcapsules. The use of these novel PCM microcapsules in heat transfer fluids is expected to provide an unprecedented combination of highly desirable features for thermal applications, including high heat capacity, high thermal conductivity, high thermal stability, and mass production ability.

### Advantages:

- High heat capacity
- High thermal conductivity and stability
- Mass production ability

### Applications:

- Thermal storage
- Thermal transfer

## CONTACT INFO

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## Additional Information

### INSTITUTION

University of Maryland, College Park

### PATENT STATUS

Patent(s) pending

### LICENSE STATUS

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## **CATEGORIES**

- Chemical

## **EXTERNAL RESOURCES**

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