

### Preparation of Phase change material Nanocapsules via Modified Resin Fortified Miniemulsion Polymerization

조원석, 이승모, 박영하, 이선종<sup>1</sup>, 정인우<sup>2</sup>, 고원진, 김중현\*  
연세대학교; <sup>1</sup>동진세미켐; <sup>2</sup>경북대학교  
(jayhkim@yonsei.ac.kr\*)

Phase change material-polystyrene (PCM-PS) nanocapsules were prepared by modified resin fortified miniemulsion (RFME) polymerization using the alkali soluble resin (ASR). poly (styrene-co-acrylic acid) (SAA) , which is functional amphiphilic polymer, was used as the surfactant of resin fortified emulsion polymerization. Co-surfactant and crosslinker were improved the PCM encapsulation efficiency. Average particle size of nanocapsules was about 300nm by DLS. Morphology and inner structure of nanocapsules were proved by SEM and TEM method. Particle size distribution and heat storage of nanocapsules were analyzed by differential scanning calorimetry.