

유무기 입도안정제 종류에 따른 열팽창 캡슐의  
특성 변화 연구

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Recently, lightweight materials become a very important keyword and foaming technology is having a lot of attention from automotive industries. Thermally expandable microcapsules (TEMs) can be expanded upon heating because activation energy of liquid hydrocarbon at the core of TEMs increased at high temperature. Due to this property, TEMs are used as blowing agents or light-weight fillers in many industries. In this article, core-shell thermally expandable microcapsules were prepared via conventional and Pickering suspension polymerization. Acrylonitrile (AN) and methacrylonitrile (MAN) were used as the comonomers. The halloysite nanotubes (HNTs) and poly vinylpyrrolidone (PVP) were used as inorganic pickering and organic emulsifier respectively. Content of liquid hydrocarbon at the core, thermal and expanding properties of the TEM with two different emulsifiers were compared. Mechanical properties of PP foams fabricated with two different type of TEM were also analyzed. TEM polymerized with PVP provided finer expanded cell while the one fabricated with halloysite showed bigger expanded cell in PP matrix.