Influence of cross-linker on synthesizing thermo-expandable microcapsules by Pickering suspension

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Thermo-expandable microcapsules are polymeric particles which have numerous industrial applications as blowing agent. Pickering emulsions are stabilized emulsions by using solid particles such as Halloysite nanotubes (HNTs), not using surfactants
In this study, the microcapsules were synthesized with poly(acrylonitrile-co methylmethacrylate) as a shell and n-octane as a core part via Pickering suspension polymerization with HNTs. Pickering emulsions composed ofmethyl metha acrylate (MMA) and acrylonitrile (AN) were stabilizedin water by HNT. N-octane was used as a blowing agent and 1,4-Butanedioldimethacrylate (BDDMA) was used asa crosslinking agent. Adequate content of crosslinking agent enhanced the expansion property. Also, the average particle size was minimized with 0.03g of BDDMA. The fabricated particles expand at 150 °C.

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