

Porous Structure and Surface Crosslinked Superabsorbent Polymer To Enhance Mechanical Properties Under Pressure

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Superabsorbent polymer (SAP), usually using in diapers, requires various mechanical properties. Especially, SAP needs to withstand high pressure and to absorb water under pressure due to the characterization of the diaper. In our study, we fabricated the porous SAP through the Inverse-suspension polymerization of the partially neutralized acrylic acid monomers with Tri-Ethylene Glycoldiacrylate (TEGDA) crosslinkers and Sodumbicarbonate (SBC) foaming agent. These manufactured porous SAPs have rapid swelling rate, high water retention capacity under pressure and good permeability; however, have low mechanical strength under pressure. Therefore, as refers to previous studies, we tried to increase the mechanical strength by crosslinking Ethylene Glycol Diglycidyl Ether (EGDE) on the surface of the porous SAP particles to improve the mechanical properties and thus producing a core-shell structure.