

Facile fabrication of cryogel from cellulose acetate and PVA for oil–water separation

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To address the growing issues of water pollution like oil spillage, a facile fabrication of cryogel for the separation of oil and water has been performed. A cryogel block was fabricated via facile procedure of freeze drying. We demonstrate varied technique of fabricating a cryogel with superb mechanical strength and flexibility. The admirable physical properties of this material were constructed via crosslinking reaction of cellulose acetate (CA) and PVA. Herein, the functionality was differed through hydrolysis and chemical vapor deposition to generate a superhydrophilic and superhydrophobic surface, respectively. The prepared cryogel possesses excellent performance for the separation of oil and water mixture. It also has high reusability and is made from eco-friendly materials. The obtained cryogel shows an exemptional adsorption ability in different kinds of oil that makes it a good material for other applications.