

演題: Honeycomb-like Polymeric Films from Dendritic Polymers Presenting Shape-memory Effect



講演

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要旨: In this work, a series of dendritic surfactants (dendrons; Scheme), featuring a focal part rich in hydrogen bonding groups and a periphery rich in non-polar units that undergo van der Waals interactions have been developed, and subsequently grafted onto polystyrene (PS) and polyurethane (PU) polymers that then self-assembled, in conjunction with a breath-figure process, into honeycomb-like polymeric films. With the addition of a small amount of dendritic surfactants to the polymers such as poly(D,L-lactide), PS, poly(methyl methacrylate), etc., a well-organized honeycomb-like surface also has been achieved. Moreover, honeycomb-like films could be obtained from dendritic side-chain polymers presenting reactive pendant units. Through chemical modifications, one could readily

manipulate the surface properties of these honeycomb-like films with controllable surface roughness. Through further molecular design and process improvement, a honeycomb-like structure with shape-memory behavior has been realized. This approach opens a facile route to an efficient, inexpensive and versatile method to prepare films with switchable wettability. Apart from that, possible applications of these honeycomb-like polymeric films in fields such as microanalysis in analytical chemistry will be also addressed.



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