

THERMODYNAMICS AND CHEMICAL...

SEBS 二嵌段共聚物微相分离研究

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**摘要** Surface morphologies of the films of poly(styrene-*b*-ethylene-co-butene-*b*-styrene) (SEBS) have been studied by using tapping-mode atomic force microscopy (TM-AFM). The films of block copolymer were prepared both by spin-coating on mica and by solvent-casting on different solution surfaces. For spin-coating samples, the effect of solution concentration, solvent, and annealing temperature are investigated. It is shown that changing the solvent makes no difference on the morphology of the films of the block copolymer. The microstructures are quite stable during thermal annealing, only the size of the domains changes toward the equilibrium configuration. However, solvent annealing can notably change the microstructures. When different selective solvents are used for film spin-coating, different morphologies can be obtained and explained by the different solubility parameters of the solvents. As expected, significant different morphologies in the top and the bottom surfaces of the casting films were observed. The images of the top surfaces reveal cylinder microdomains, while those of the bottom surfaces were spherical morphologies.

**关键词** [SEBS](#), [微相分离](#), [AFM](#)

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Morphology of Films of SEBS Triblock Copolymers

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**Abstract** Surface morphologies of the films of poly(styrene-*b*-ethylene-co-butene-*b*-styrene) (SEBS) have been studied by using tapping-mode atomic force microscopy (TM-AFM). The films of block copolymer were prepared both by spin-coating on mica and by solvent-casting on different solution surfaces. For spin-coating samples, the effect of solution concentration, solvent, and annealing temperature are investigated. It is shown that changing the solvent makes no difference on the morphology of the films of the block copolymer. The microstructures are quite stable during thermal annealing, only the size of the domains changes toward the equilibrium configuration. However, solvent annealing can notably change the microstructures. When different selective solvents are used for film spin-coating, different morphologies can be obtained and explained by the different solubility parameters of the solvents. As expected, significant different morphologies in the top and the bottom surfaces of the casting films were observed. The images of the top surfaces reveal cylinder microdomains, while those of the bottom surfaces were spherical morphologies.

**Key words** [SEBS](#), [microphase separation](#), [AFM](#)

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