ture-sensitive waterproof and breathable fabric. *Silk Monthly* 2007; 12: 34-36.
12. Horii F, Maruyama H, Hayashi S, et al. Moisture-permeable water-proof fabric and its production. *JPH04370276 (A)* 1992; 12, 22.
13. Ding X M, Hu J L, Tao X M, et al. Preparation of temperature-sensitive polyurethanes for smart textiles. *Textile Research Journal* 2006; 76: 406-413.
14. Huanhuan Shi, Yi Chen, Haojun Fan, et al. Thermosensitive polyurethane film and finished leather with controllable water vapor permeability. *Journal of Applied Polymer Science* 2010; 117: 1820-1827.
15. QUAN Heng, WU Dan and HAN Jing. Study on the structure of polyether polyurethane and its waterproofing & breathable properties. *TEXTILE AUXILIARIES* 2012; 29: 8-11.
16. Ding XM, Hu JL. Morphology and water vapor permeability of temperature-sensitive polyurethanes. *Journal of Applied Polymer Science* 2008,107: 4061-4069.
17. Han H R. Shape memory and breathable waterproof properties of polyurethane nanowebs. *Textile Research Journal* 2013; 83: 76-82.
18. Mondal S and Hu J L. Free volume and water vapor permeability of dense segmented polyurethane membrane. *Journal of Membrane Science* 2006; 280: 427-432.
19. Anupama Kaushik Paramjit Singh. Kinetic Study of polyurethane reaction between castor Oil/TMP polyol and diphenyl methane diisocyanate in bulk. *International Journal of Polymeric Materials and Polymeric Biomaterials* 2006; 55:549-561.
20. Bao Li-Hong, Lan Yun-Jun and Zhang Shu-Fe. Synthesis and properties of waterborne polyurethane dispersions with ions in the soft segments. *Journal of Polymer Research* 2006;13: 507-514.
21. Mondal S and Hu J L. Water vapor permeability of cotton fabrics coated with shape memory polyurethane. *Carbohydrate Polymer* 2007; 67: 282-287.
22. Qi Cao, Shaojun Chen and Jinlian Hu, et al. Study on the Liquefied-MDI-Based shape memory polyurethanes. *Journal of Applied Polymer Science* 2007; 106: 993-1000.
23. Dyana Merline J, Reghunadhan C P, Gouri Nair C, et al, Polyether polyurethanes: Synthesis, characterization, and thermoresponsive shape memory properties. *Journal of Applied Polymer Science* 2008; 107: 4082-4092.
24. Shaojun Chen, Qi Cao, Bo Jing, et al. Effect of Microphase-separation promoters on the shape-memory behavior of polyurethane. *Journal of Applied Polymer Science* 2006;102: 5224-5231.
25. Ding X M, Hu JL and Tao XM. Effect of crystal melting on water vapor permeability of shape-memory polyurethane film. *Textile Research Journal* 2004;74: 39-43.

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