Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.


# Development of Supramolecular Liquid-Crystalline Polyurethane Complexes Exhibiting Triple-shape Functionality using a One-step Programming Process

Shaojun Chen[1], Hongming Yuan[1], Shiguo Chen[1], Haipeng Yang, Zaochuan Ge[1]*[a)],

Haitao Zhuo[2]*[b)], Jianhong Liu[2],

[1]*Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen,518060, China.* [2]*Shenzhen Key Laboratory of Functional Polymer, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, 518060, China.*

*Corresponding author: College of Materials Science and Engineering，Shenzhen University, Shenzhen 518060, China. Tel and Fax: +86-755-26534562. E-mail: [a)]Z.C.Ge gezc@szu.edu.cn; [b)]H.T.Zhuo haitaozhuo@163.com

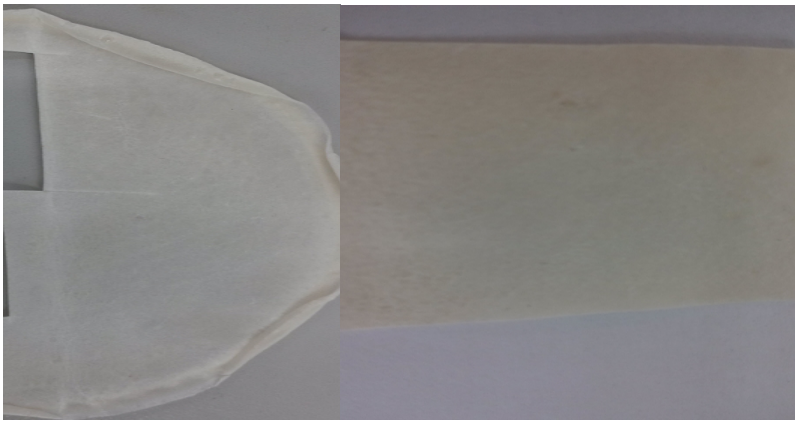
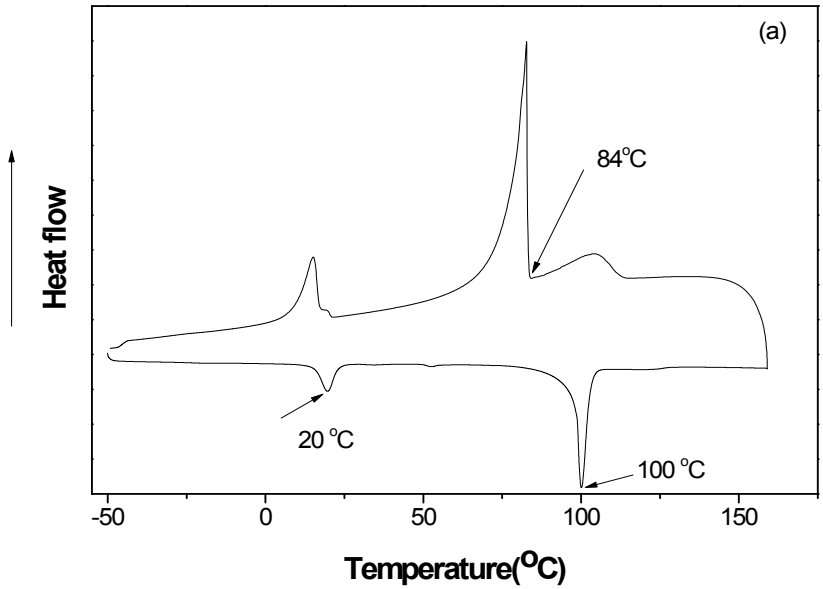


Fig. A*. Photos of a PySMPU-1.3HOBA sample with a perfect polymeric film



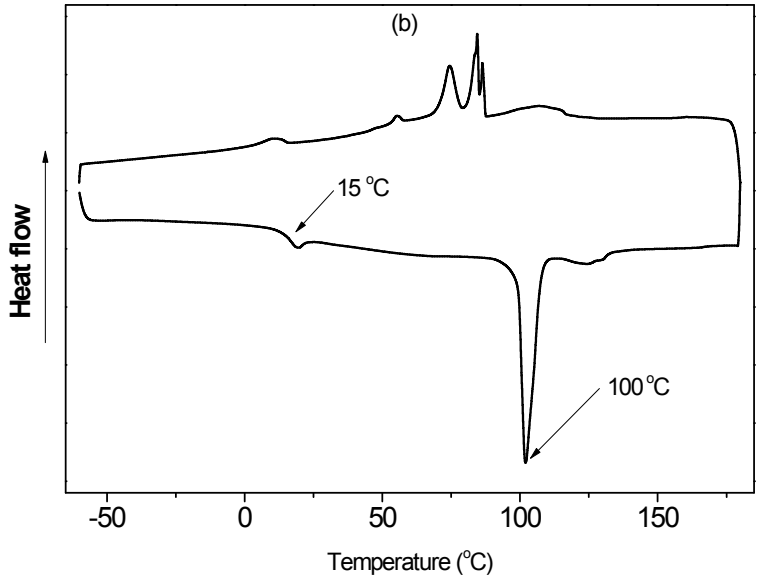




Fig. B*. the first DSC heating curves for pure HOBA (a) and SMPU-0.8HOBA (b) showing the main phase

transitions

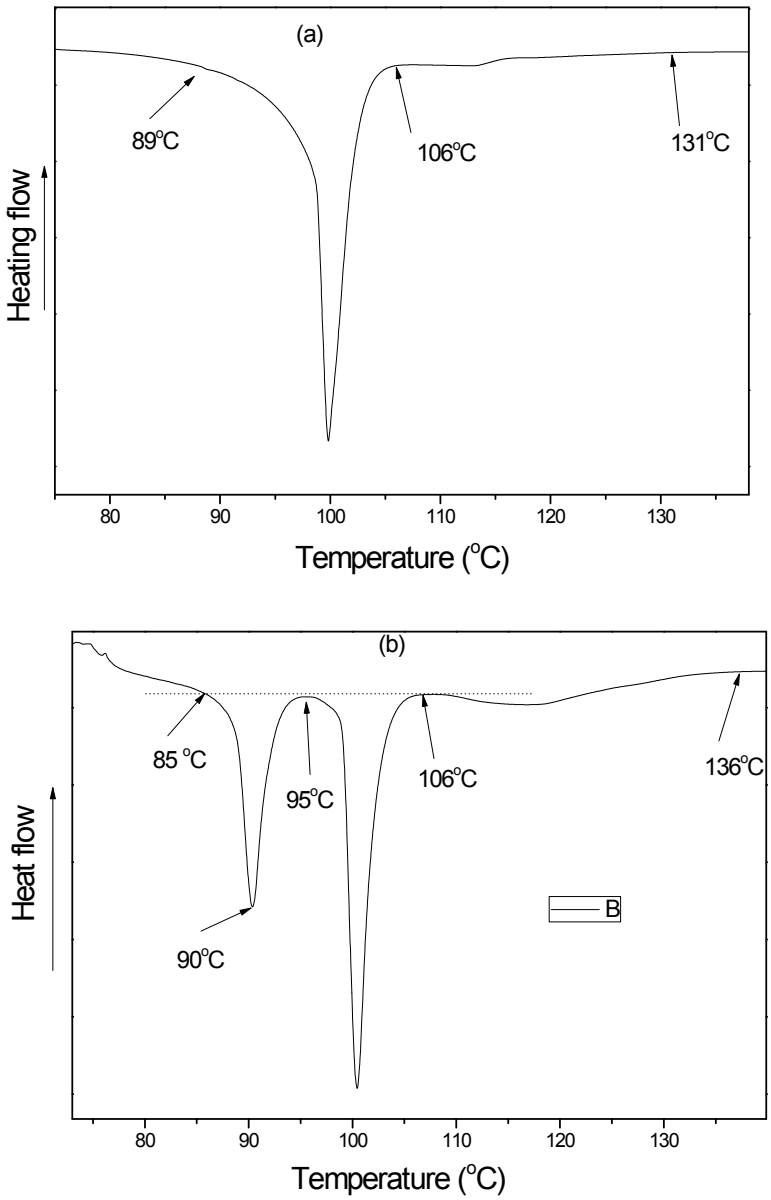



Figure C* the second DSC heating curves of (a) pure HOBA and (b) SMPU-0.6HOBA showing the crystal melting process and entering mesophic phase process

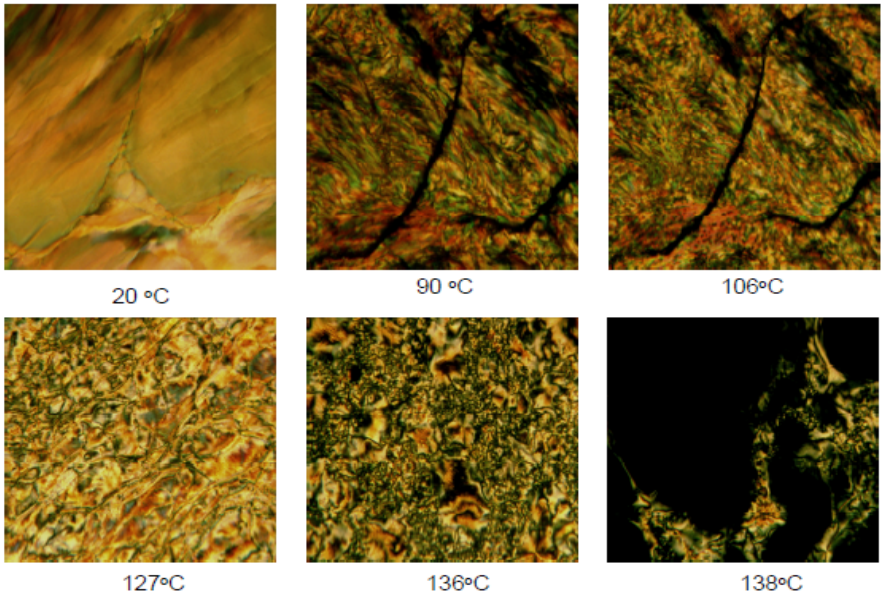



Figure D*. POM images (×400) of pure HOBA showing the phase transition process

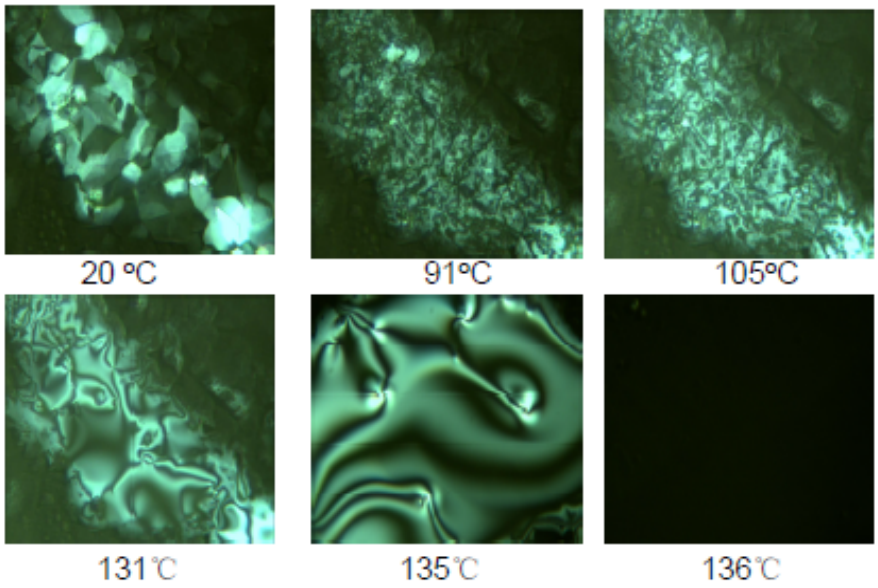



Figure E*. POM images (×400) of SMPU-0.6HOBA showing the phase transition process

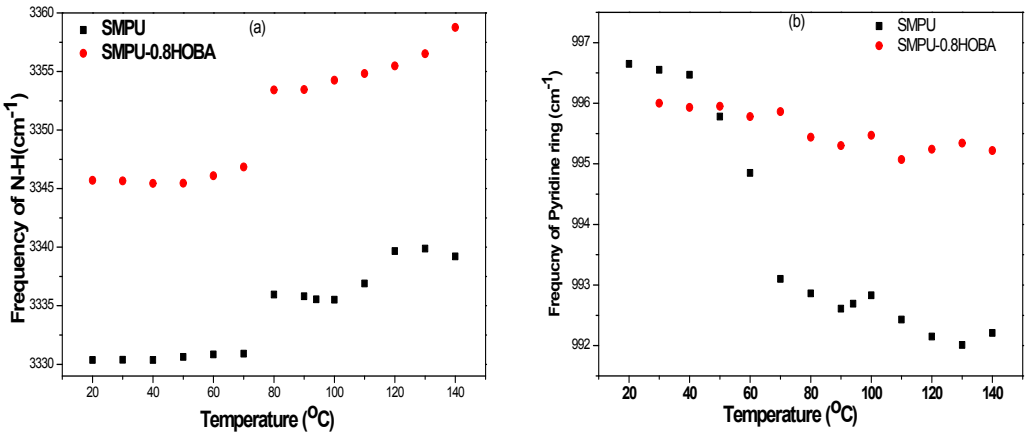



Figure F* Temperature-dependent Frequencies for SMPU and SMPU-0.8HOBA at the position of N-H group (a) and pyridine ring (b)

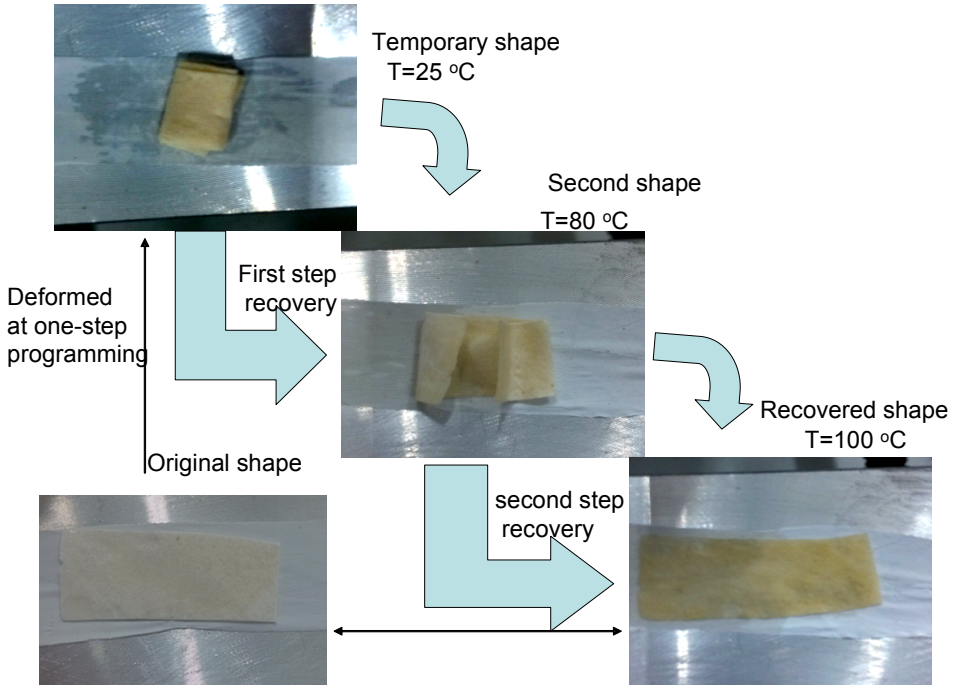



Figure G* Triple shape recovery process of sample PySMPU-0.6HOBA