Science Bridges China Research Profile

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SUMMARY OF MY RELEVANT RESEARCH AREAS:

Polymer processing,
Polymer blends & composites

聚合物加工、
聚合物共混复合材料

Primary Research interests:

Development and control of morphology and structure of polymers as well as their blends and composites during the processing, Novel methods in the preparation of Polymer blends and composites as well as their structure & properties relationship, Polymer/drug systems and their release behaviours.

Topics in which you would like to develop collaborative research:

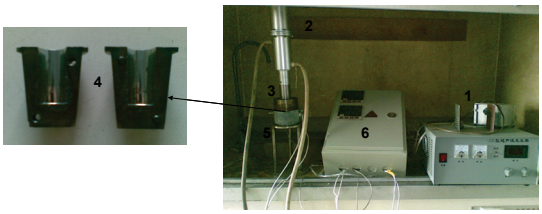
1. **Co-crystallization of drug pairs in hot melt extrusion under ultrasound**
2. **Release behaviours of Polymer/drug prepared in hot melt extrusion under ultrasound**
3. **Release behaviours of Polymer/drug with alternative multilayered structure prepared in the hot melt extrusion**

Relevant existing collaborations (academic/clinical/commercial) inside or outside China.

Existing academic collaboration with Prof. Anant Paradkar from University of Bradford (UK), is based on Topic 1 and 2.

Relevant graphics, figures, pictures:

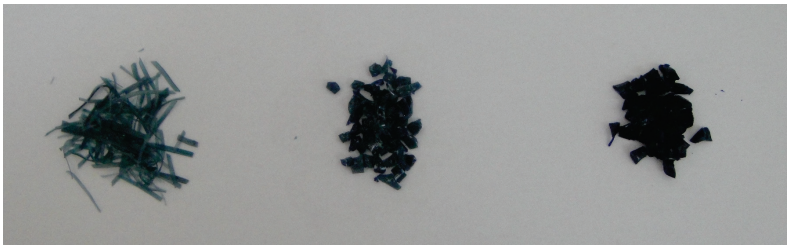
Ultrasound treator



Temperature Calibration during heating and cooling process

1 Ultrasound generator **2** Piezoelectric transducer **3** Horn **4** Cell
5 Electric heaters **6** Tem control sys.

Ultraound enhanced dispersion of MB in PLA



Untreated **1min ultrasound treated** **5min ultrasound treated**

Publications and other outputs relevant to your interest in this programme

1. Bo Peng, Hong Wu, Wenting Bao, Shaoyun Guo, Yong Chen, Hua Huang, Hongyu Chen, Shih-Yaw Lai, Jinder Jow, Ultrasound initiated maleic anhydride grafted onto a novel polypropylene copolymer, Polymer Engineering & Science, 52, 518-524, 2012.
2. Bo Peng, Hong Wu, Wenting Bao, Shaoyun Guo, Yong Chen, Hua Huang, Hongyu Chen, Shih-Yaw Lai, Jinder Jow, Effects of ultrasound on the morphology and properties of propylene-based plastomer/nanosilica composites, Polymer Journal, 43, 91-96, 2011.
3. Rong Chen, Chuanbin Yi, Hong Wu, Shaoyun Guo, Degradation kinetics and molecular structure development of hydroxyethyl cellulose under the solid state mechanochemical treatment, Carbohydrate Polymers, 81(2), 188-195, 2010.
4. Hong Wu, Wenting Bao and Shaoyun Guo, Enhanced flow behaviors of metallocene-catalyzed linear low-density polyethylene during ultrasound-assisted extrusion, Polymer Engineering & Science, 50(11), 2229-2235, 2010.
5. Tingting Xie, Hong Wu, Wenting Bao, Shaoyun Guo, Yong Chen, Hua Huang, Hongyu Chen, Shih-Yaw Lai and Jinder Jow, Enhanced compatibility of PA6/POE blends by POE-g-MAH prepared through ultrasound-assisted extrusion, Journal of Applied Polymer Science, 118(3), 1846-1852, 2010.
6. Rong Chen, Chuanbin Yi, Hong Wu, Shaoyun Guo, Solid State Mechano-chemical Grafting Copolymerization of Hydroxyethyl Cellulose With Acrylic Acid, Journal of Applied Polymer Science, 112(6), 3537-3542, 2009.
7. Bo Peng, Hong Wu, Shaoyun Guo, Shih-Yaw Lai, Jinder Jow, Static ultrasonic oscillations induced degradation and its effect on the linear rheological behavior of novel propylene based plastomer melts, Polymer Degradation and Stability, 92(8), 1632-1639, 2007.
8. Bo Peng, Hong Wu, Shaoyun Guo, Shih-Yaw Lai, Jinder Jow, Effects of ultrasonic oscillations on rheological behavior and mechanical properties of novel propylene-based plastomers, Journal of Applied Polymer Science, 106(3), 1725-1732, 2007.
9. Hong Wu, Shaoyun Guo, “Improved Properties of Metallocene-Catalyzed Linear Low Density Polyethylene/Polypropylene Blends during Ultrasonic Extrusion”, Chinese J. Polym. Sci., 25(4), 357-364, 2007.