

Synthetic Polymer-polymer Composites

[DOWNLOAD HERE](#)

1;Preface;6 2;Contents;8 3;Contributors;22 4;PART I INTRODUCTION;32 4.1;Chapter 1 Manufacturing and Processing of Polymer Composites;34 4.1.1;1.1. Introduction;34 4.1.2;1.2. Autoclave-processing;36 4.1.2.1;1.2.1. Introduction;36 4.1.2.2;1.2.2. Equipment;36 4.1.2.3;1.2.3. Laminate assembly;36 4.1.2.4;1.2.4. Process description;37 4.1.2.5;1.2.5. Further developments;38 4.1.3;1.3. Pultrusion;38 4.1.3.1;1.3.1. Introduction;38 4.1.3.2;1.3.2. Equipment;38 4.1.3.3;1.3.3. Process description;39 4.1.4;1.4. Filament winding and placement techniques;41 4.1.4.1;1.4.1. Filament winding;41 4.1.4.2;1.4.2. Tape-laying;46 4.1.5;1.5. Liquid composite molding;49 4.1.5.1;1.5.1. Introduction;49 4.1.5.2;1.5.2. LCM processes with single sided tools;50 4.1.5.3;1.5.3. Double sided tool LCM processes;54 4.1.6;1.6. Thermoforming of semifinished thermoplastic composite sheets;57 4.1.6.1;1.6.1. Double belt press forming;57 4.1.6.2;1.6.2. Continuous compression molding;57 4.1.6.3;1.6.3. Roll forming;58 4.1.7;1.7. Combined forming processes;60 4.1.7.1;1.7.1. Thermoforming and injection/compression molding;60 4.1.7.2;1.7.2. Pultrusion/impregnation and roll forming;60 4.1.8;1.8. Post processing of composites;61 4.1.8.1;1.8.1. Welding of thermoplastics;62 4.1.9;1.9. Conclusions and outlook;63 4.1.10;References;63 4.2;Chapter 2 Melting of Polymer-Polymer Composites by Particulate Heating Promoters and Electromagnetic Radiation;70 4.2.1;2.1. Introduction;70 4.2.2;2.2. State of the art;71 4.2.2.1;2.2.1. Induction heating;72 4.2.2.2;2.2.2. Microwave heating;74 4.2.3;2.3. Selective melting using particulate fillers;79 4.2.3.1;2.3.1. Selective melting by induction;80 4.2.3.1.1;2.3.1.1. Effect of different susceptor materials;81 4.2.3.1.2;2.3.1.2. Effect of frequency variation;83 4.2.3.1.3;2.3.1.3. Effect of susceptor size;83 4.2.3.1.4;2.3.1.4. Application of induction heating for polymer-polymer materials;84 4.2.3.1.5;2.3.1.5. Simulation of particulate inductive heating;84 4.2.4;2.4. Selective melting by microwave radiation;88 4.2.4.1;2.4.1. Effect of different susceptor materials;88 4.2.4.2;2.4.2. Influence of dispersion quality;91 4.2.5;2.5. Concepts for an industrial application;92 4.2.6;2.6. Conclusions and outlook;93 4.2.7;Acknowledgements;94 4.2.8;References;94 4.2.9;Further Reading;95 4.3;Chapter 3 Inter-Particle Distance and Toughening Mechanisms in Particulate Thermosetting Composites;96 4.3.1;3.1. Introduction;96 4.3.2;3.2. Various conditions for fracture surface morphology;97 4.3.3;3.3.

Inter-particle/void distance and toughening mecha;98 4.3.3.1;3.3.1. Theoretical inter-particle distance;99 4.3.3.2;3.3.2. Method for inter-particle distance measurement;100 4.3.3.3;3.3.3. Statistical properties of inter-particle distance;105 4.3.3.3.1;3.3.3.1. 3D particle generation;105 4.3.3.3.2;3.3.3.2. Results and discussion;108 4.3.3.4;3.3.4. Experimental inter-void distance and toughness;112 4.3.3.4.1;3.3.4.1. Method for void generation in matrix;112 4.3.3.4.2;3.3.4.2. Mechanical testing;113 4.3.3.4.3;3.3.4.3. Microscopy;113 4.3.3.4.4;3.3.4.4. Experimental results and discussion;114 4.3.4;3.4. Toughening mechanisms in the presence of compressive stress around particles/voids;120 4.3.4.1;3.4.1. Necessary conditions for cavitation;120 4.3.4.2;3.4.2. Graphical understanding of compressive stress around particles;121 4.3.4.3;3.4.3. Creating compressive stress around modifier particles as a toughening method;122 4.3.4.4;3.4.4. Production of mechanical testing specimens;123 4.3.4.5;3.4.5. Mechanical properties of toughened epoxies;124 4.3.4.6;3.4.6. Fracture surface morphology examination;124 4.3.4.7;3.4.7. Stress intensity factor influenced by compressive residual stress;128 4.3.4.8;3.4.8. Mohr circle analysis for fracture surface morphology;131 4.3.4.9;3.4.9. Interaction of toughening mechanisms;137 4.3.5;3.5. Conclusions;142 4.3.6;References;143 5;PART II POLYMER-POLYMER COMPOSITES WITH PREMADE FIBR EAN/ISBN : 9781569905258 Publisher(s): Hanser Fachbuchverlag Discussed keywords: Polymere Format: ePub/PDF Author(s): Bhattacharyya, Debes - Fakirov, Stoyko

[DOWNLOAD HERE](#)

Similar manuals: