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and Crystallization of PLA

3.3 Thermal Decomposition 3.4 Heat Capacity, Thermal Conductivity and Pressure-Volume-Temperature of PLA; 3.5 Conclusion; References; 4 Chemical Properties of Poly(lactic Acid); 4.1 Introduction; 4.2 Stereochemistry of Poly(lactic Acid); 4.3 Analytical Technique of PLA; 4.3.1 Nuclear Magnetic Resonance Spectroscopy; 4.3.2 Infrared Spectroscopy; 4.4 Solubility and Barrier Properties of PLA; 4.4.1 Solubility of Polylactic Acid; 4.4.2 Permeability of Polylactic Acid; 4.5 Conclusion; References; 5 Mechanical Properties of Poly(lactic Acid); 5.1 Introduction
5.2 Effect of Crystallinity and Molecular Weight on Mechanical Properties of PLA 5.3 Effect of Modifier/Plasticizer on PLA; 5.4 Polymer Blends of PLA; 5.4.1 Poly(lactic Acid) and Polycaprolactone Blend; 5.4.2 Blends of Polylactide with Degradable or Partially Degradable Polymers; 5.4.3 Blends of Polylactide and Polyhydroxyalkanoates; 5.4.4 PLA Blends with Nondegradable Polymers; 5.5 Conclusion; References; 6 Rheological Properties of Poly(lactic Acid); 6.1 Introduction; 6.2 Rheological Properties of Poly(lactic Acid); 6.3 Effects of Molecular Weight; 6.4 Effects of Branching
6.5 Extensional Viscosity 6.6 Solution Viscosity of PLA; 6.7 Rheological Properties of Polymer Blends; 6.7.1 PLA/PBAT Blend; 6.7.2 Blend with Layered Silicate Nanocomposites; 6.7.3 PLA/Polystyrene Blend; 6.8 Conclusion; References; 7 Degradation and Stability of Poly(lactic Acid); 7.1 Introduction; 7.2 Factors Affecting PLA Degradation; 7.3 Hydrolytic and Enzymatic Degradation of PLA; 7.4 Environmental Degradation of PLA; 7.5 Thermal Degradation of PLA; 7.6 Flame Resistance of PLA; 7.7 Conclusion; References; 8 Applications of Poly(lactic Acid); 8.1 Introduction
8.2 Poly(lactic Acid) for Domestic Applications

Sommario/riassunto

Poly(lactic Acid) (PLA) is the first viable thermoplastic that can be produced from a plant-based feedstock such as corn or sugar cane, and yet be processed by the conventional melt processing technologies. At the same time, Poly(lactic Acid) is produced at the largest industrial scale of all biodegradable polymers. It is being used in biomedical applications, for bottle production and in compostable food packaging. It is also being evaluated as a material for tissue engineering. Mass production has tremendously reduced the cost of PLA production, making it an economically viable choice for fab
