

## **Study on crystallization behavior of poly (L-lactic acid)/poly (D-lactic acid)-co-polyethylene glycol by Optical Microscopy and Differential Scanning Calorimetry**

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This research aims to study crystallization behavior of poly(L-lactic acid) blended with poly (D-lactic acid)-co-polyethylene glycol. Poly (D-lactic acid)-co-polyethylene glycol having molecular weight of 6,480 g/mol was synthesized by ring opening polymerization using D-lactide and polyethylene glycol as reactants and stannous octoate as a catalyst. Crystalline morphology was analyzed using optical microscopy measurement. The isothermal crystallization kinetics was studied using differential scanning calorimetry. The crystallization temperature of poly (D-lactic acid)-co-polyethylene glycol blended with poly (L-lactic acid) at weight ratio of 3-5wt% were less than that of poly (L-lactic acid) 10-14°C. The crystallization time of the blends was less than that of poly(L-lactic acid) while the spherulite growth rates of the blends were more than that of poly(L-lactic acid). Avrami equation was employed to evaluate kinetic parameters. The crystallization rate was increased as poly (D-lactic acid)-co-polyethylene glycol content increased.

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Research Interest: preparation, processing and application of bio-based polymers

