Nonisothermal Melt Crystallization Behavior of Semicrystalline Polymers Monitored Using an In Situ Fluorescence Technique

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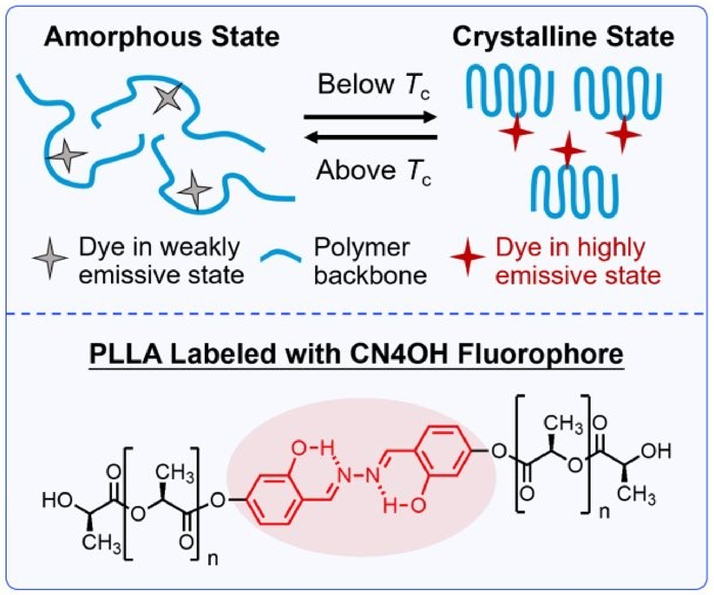
Introduction

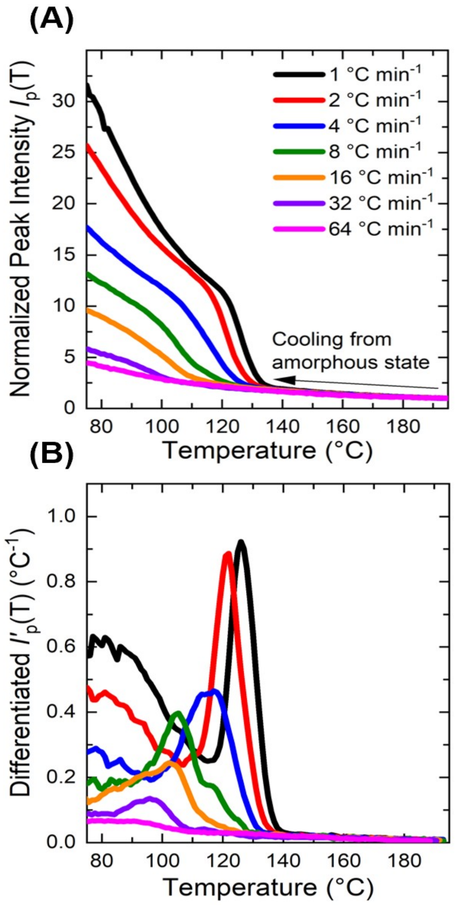
In this study, PLLA was fluorescently labeled with a fluorophore, CN4OH, which is sensitive to the degree of crystallinity in a semicrystalline polymer matrix.



Objective

The goal of this research project is to broaden the applications of a novel fluorescence technique, specifically its use in sensing crystallinity.

Results



Method

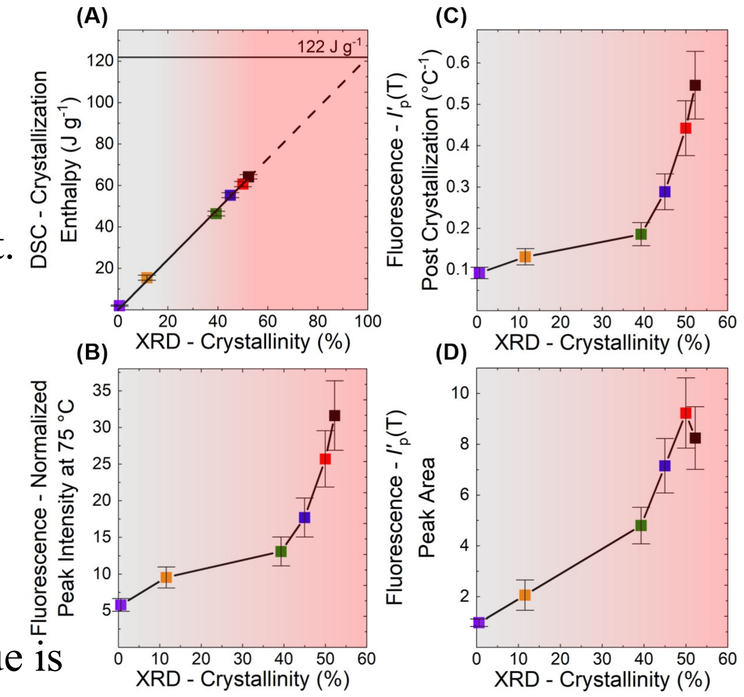
Synthesis of CN-PLLA by drop casting (10% wt. soln.)

Characterization

- DSC
- XRD
- Fluorescence

Analysis

Our fluorescence technique is sensitive to both the % crystallinity and the crystalline microstructures in the semicrystalline polymer matrix.



Future Work

Testing efficacy of technique in nanoscale/multilayer PLLA films, continue to study crystal microstructures.

Conclusion

The characterization of PLLA demonstrates the validity of the fluorescence technique , providing a better method of studying thermoplastics.

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