

## Thermal Characteristic Evaluation By Crystallization And Thermal Decomposition Measurement Of Polylactic Acid

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### ABSTRACT

Biodegradable plastic has gained attention in recent years due to concerns about waste disposal and environmental conservation. Polylactic acid (PLA) is a biodegradable plastic derived from plants and continues to be widely used in packing, fibers and medical materials. Crystallinity is an important consideration for the strength, impact resistance, and transparency requirements of these products and also influences biodegradability.<sup>1</sup> Furthermore, lactic acid, the PLA monomer, has asymmetrical carbon and thus optical isomers. The isomer ratio and molecular weight of polymers influence crystallinity and heat resistance, so they are factors in the molding process.

In this presentation, the crystallinity and heat resistance of polylactic acid are evaluated using DSC and TG. Three samples had roughly the same molecular weight but different optical isomer L-form/D-form ratios and two samples had the same L-form/D-form ratio but different molecular weights.