

Presentation Title:

Next generation bio-based thermoplastic polyester elastomers based on FDCA

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Abstract:

The renewable carbon concept currently stimulates plastic research heavily. Following this guiding principle, we have developed new thermoplastic polyester elastomers (TPEE) based on biogenic raw materials: Instead of using terephthalic acid, for which a route based on renewable carbon can hardly be seen, we have employed 2,5-furandicarboxylic acid (FDCA) to construct the crystalline thermoplastic hard block. Our intention is to demonstrate that FDCA is more than just a building block for PEF, to broaden the scope of FDCA as building block for the plastics producing industry. We will show that next generation TPEEs based on FDCA are equally worthwhile materials to be targeted. Having succeeded in identifying a suitable process window for the synthesis of high molar mass bioTPEEs, which could also be implemented industrially, the activities centered around modifying basic properties. In this context, the adjustment of the crystallization behavior to petro-based TPEE grades is an important issue which will be addressed in the talk.