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Recycling of blends composed of petro- and bio-based plastics

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Growing public concern regarding the environment and strive towards use of renewable resources represent key drivers for governments, companies, and researchers to develop alternatives to petroleum-based plastics. Replacing petro based plastics by bio based needs a transition period during which both petro and bio based plastics will coexist on the market. At the same time demand for products made from recycled materials is rising, making recyclability an important attribute for many types of plastics. Polymer blends and alloys offer an interesting solution to obtain multipurpose materials with tailor-made properties. However, recycling of these inseparable mixtures is restricted by processing as well as thermodynamic issues. As a part of the project "Sustainable recycling of "green" plastics" a study on the recycling and other challenges related to blends of bio- and petro based plastics has been done. PLA blends with HDPE and with PC has been investigated along with PVC plasticized with a bio-based plasticizer. The work has been performed by simulation of pre- and postconsumer products recycling. High throughput laboratory methods and industrial scale processing were used. Effects of recycling were investigated using sensitive analytical tools as well as tests of mechanical strength.

Biography

NazdanehYarahmadi has finished her PhD in an industrial collaboration project between Chalmers technical University and SP Technical Research Institute of Sweden in Polymer technology in 2003. She had worked at SP with research and developing of material until 2010 when she went to Carmel Pharma AB for working as manager for material and biocompatibility department. She came back to SP 2012 and she works currently as a senior researcher at SP Structural and Solid Mechanic department. She has published 12 articles in polymer technology and many conference papers. She is a member of EMPD (European Medical Polymer Device) Scientific board. She works with developing, evaluation and recycling of polymer and polymer composite products in transport and construction sectors.

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