Extended Abstract

Biobased Polyurethanes [†]

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Nowadays, the use of renewable biobased carbon feedstock is highly taken into consideration because it offers the intrinsic value of a reduced carbon footprint with an improved life cycle analysis (LCA), in agreement with sustainable development. Besides, compared to conventional fossil-based materials, innovative macromolecular architectures with improved or additional properties can be obtained.

In this presentation, we report two decades of active researches [1–11] on the synthesis and characterization of several innovative and biobased polyurethanes (PUR, PIR, TPU [1] and NIPU [4,11]), with controlled macromolecular architectures to elaborate membranes and foams. These materials are synthesized from different biobased building blocks: (i) aliphatic structures from PHA, or modified glycerides (dimer fatty acids), sugar-based molecules, etc., and (ii) aromatic structures from lignins, tannins and furans.

In our lab, a large range of materials with nice properties and durable applications is developed from these different architectures, for a greener and durable future. The end of life of these materials is also considered by, e.g., bio-recycling [10].

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