Recent advances in ring opening polymerization of new CO2-based cyclic carbonates

Matteo Lanzi[1] and Arjan W Kleij[1]

[1]Inst Chem Res Catalonia ICIQ, Av Paisos Catalans 16, Tarragona 43007, Spain

September 8, 2023

Abstract

Carbon dioxide can be converted into functional heterocycles known as cyclic carbonates, whose recent reactivity has been expanded towards the formation of tailor-made engineering polymers. This minireview gives an overview of the most topical developments in this area with a special focus on the synthetic methods employed to prepare these CO2 based synthons. In addition, their application potential in the area of polymer science using a variety of polymerization techniques is discussed that have in common the ring-opening of the carbonate monomers. Future perspectives are provided that provide impetus for the scientific communities aligning research to the use of sustainable processes for polymers from recyclable carbon sources such as CO2.

Hosted file

`Kleij et al. 07aug23.docx` available at https://authorea.com/users/660890/articles/664208-recent-advances-in-ring-opening-polymerization-of-new-co2-based-cyclic-carbonates