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Recyclable Cyclic Bio-based Acrylic Polymer via Pairwise Monomer Enchainment by a Trifunctional Lewis Pair
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Trifunctional Lewis Pair Catalyzed Cyclopolymerization

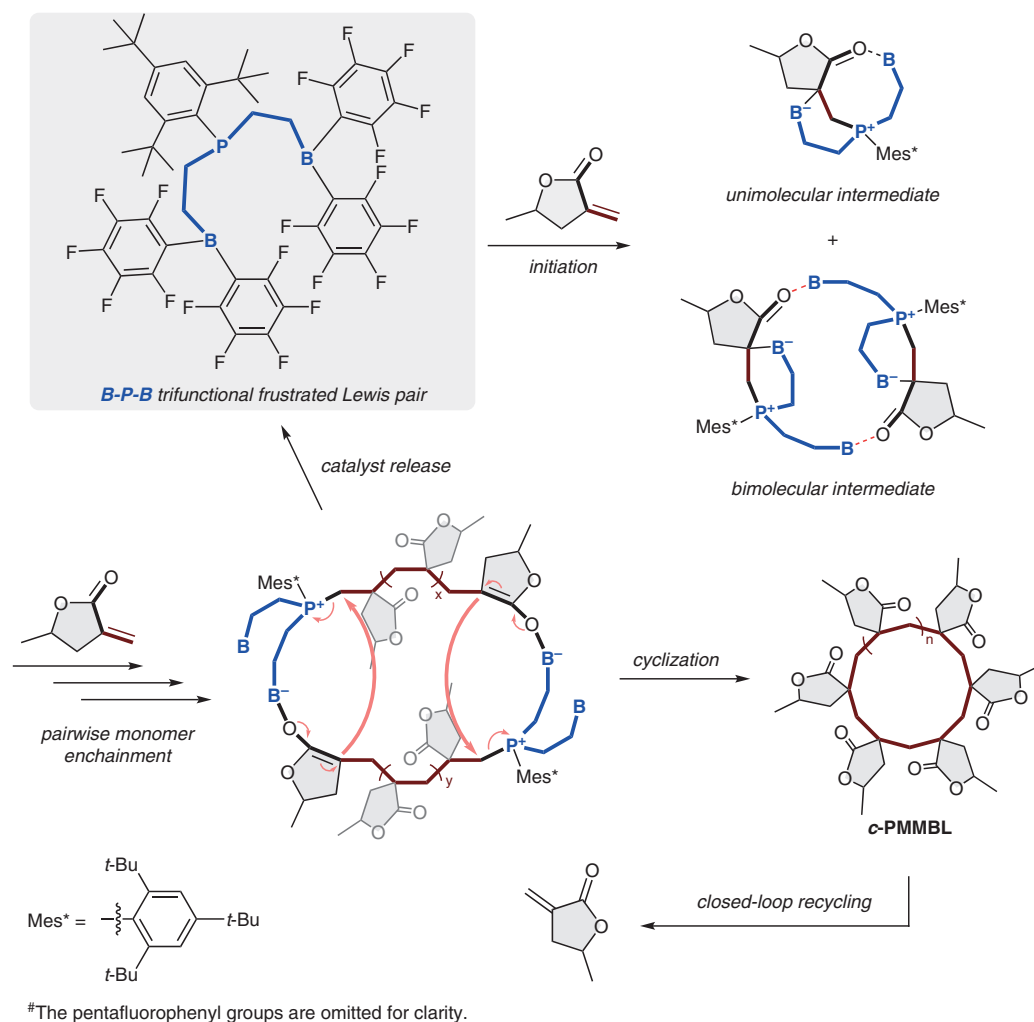
Category

Synthesis of
Materials and
Unnatural Products

Key words

frustrated Lewis pair
cyclic polymer
recyclable polymer
synergistic bimolecular
mechanism

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Significance: Compared with conventional linear polymers, cyclic polymers boast unique properties, such as lower intrinsic viscosity, smaller hydrodynamic volume, higher thermal stability, etc. However, their syntheses are apparently more challenging. A new, recyclable cyclic polymer is accomplished here.

Comment: A trifunctional frustrated Lewis pair consisting of two boron-centered Lewis-acid branches linked by a phosphane Lewis-base moiety is the key to the synthesis of the cyclic poly(γ -methyl- α -methylene- γ -butyrolactone) (c-PMMBL) via a synergistic cyclobimolecular catalysis mechanism.

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