POLYCARBONATE POLYOL COMPOSITIONS AND METHODS

ABSTRACT OF THE DISCLOSURE

In one aspect, the present disclosure encompasses polymerization systems for the copolymerization of CO_2 and epoxides comprising 1) a catalyst including a metal coordination compound having a permanent ligand set and at least one ligand that is a polymerization initiator, and 2) a chain transfer agent having two or more sites that can initiate polymerization. In a second aspect, the present disclosure encompasses methods for the synthesis of polycarbonate polyols using the inventive polymerization systems. In a third aspect, the present disclosure encompasses polycarbonate polyol compositions characterized in that the polymer chains have a high percentage of –OH end groups and a high percentage of carbonate linkages. The compositions are further characterized in that they contain polymer chains having an embedded polyfunctional moiety linked to a plurality of individual polycarbonate chains.

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