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(54) Title: CATALYTIC DEPOLYMERIZATION OF POLYMERS CONTAINING ELECTROPHILIC LINKAGES USING NUCLEOPHILIC REAGENTS

(57) Abstract: A method is provided for carrying out depolymerization of a polymer containing electrophilic linkages in the presence of a catalyst and a nucleophilic reagent, wherein production of undesirable byproducts resulting from polymer degradation is minimized. The reaction can be carried out at a temperature of 80°C or less, and generally involves the use of an organic, nonmetallic catalyst, thereby ensuring that the depolymerization product(s) are substantially free of metal contaminants. In an exemplary depolymerization method, the catalyst is a carbene compound such as an N-heterocyclic carbene, or is a precursor to a carbene compound. The method provides an important alternative to current recycling techniques such as those used in the degradation of polyesters, polyamides, and the like.



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