

Biodegradable linear random copolyester and process for preparing it and use of the same

Abstract

The present invention relates to a biodegradable, random and linear copolyester of high molecular weight and narrow molecular weight distribution, and to process for preparing it and use of the same. The present copolyester has a weight-average molecular weight M_w of 100,000-600,000 g/mol, and a molecular weight distribution of 1.2-3. The copolyester is widely used in the fields of profiles, films, fibers and coatings. The process for synthesizing the polyester described herein comprises the steps of: 1) adding the following monomers and an optional catalyst component Cat1 to a reactor to carry out interesterification and/or esterification: (a) aromatic dicarboxylic acid, ester thereof, anhydride thereof, or mixture thereof, (b) aliphatic diol, alicyclic diol or mixture thereof, and (c) aliphatic dicarboxylic acid, alicyclic dicarboxylic acid, ester thereof, anhydrides thereof, or mixture thereof; 2) prepolymerizing the reaction system obtained in step 1) under vacuum; and 3) adding a catalyst component Cat2 to the prepolymerized product obtained in step 2) to carry out polycondensation under vacuum, thereby obtaining the desired polyester; wherein the catalyst component Cat1 is selected from the group consisting of the compounds of Ti, Sb and Zn, and mixtures thereof; and the catalyst component Cat2 is selected from the compounds of RE and mixtures thereof.

Figure 5