

[54] **HIGH MOLECULAR WEIGHT POLYANHYDRIDE AND PREPARATION THEREOF**

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ABSTRACT

High molecular weight polyanhydrides, defined as polyanhydrides having a molecular weight average greater than 20,000 or an intrinsic viscosity of greater than 0.3 dl/g in an organic solvent at room temperature, are formed by melt polycondensation of highly pure isolated prepolymers under optimized reaction conditions, particularly time and temperature with removal of the condensation product. Higher molecular weights are obtained by inclusion of a catalyst with the prepolymers in the melt polymerization. Catalysts used for transesterification, ring opening polymerization and related polymerizations may be utilized.

The high molecular weight polyanhydrides have improved physico-mechanical properties and are especially well suited for biomedical applications, particularly in controlled release devices for drug delivery.

20 Claims, 8 Drawing Sheets