

High molecular weight polyamides obtained from nitriles

Abstract

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High molecular weight polyamides are prepared from cyano- and/or amino-containing monomers by polymerization in a manner known per se to give polyamides having a low molecular weight and subsequent thermal aftertreatment to give high molecular weight poly-
10 amides, by

- (a) polymerizing monomers selected from the group consisting of aminonitriles of the general formula I

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and mixtures of diamines of the general formula II

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with dinitriles of the general formula III



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where m, n and p are integers from two to twelve, in a molar diamine/dinitrile ratio of from 0.98:1 to 1.02:1 in a manner known per se, a relative viscosity from 1.4 to 2.0 (measured at a concentration of 1 g of prepolymer per 100 ml in 96% strength by weight sulfuric acid at 23°C) being chosen for
30 the resulting prepolymers, to give a product capable of being granulated,

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- (b) then granulating the prepolymer obtained under (a) and

- 35 (c) then subjecting the granules obtained under (b) to solid-phase postcondensation at from 5 to 100°C below the melting point of the prepolymer in the presence of an inert gas which contains at least 50% by volume of superheated steam to give a high molecular weight polyamide having a relative viscosity
40 of from 2.3 to 5.0 (measured at a concentration of 1 g of polymer per 100 ml in 96% strength by weight sulfuric acid at 23°C), the difference between the relative viscosity of the resulting prepolymer from stage (a) and that of the high molecular weight polyamide from stage (c) being at least 0.4.
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