

Abstract

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The batch process for producing a polyamide by reaction of a mixture comprising at least one aminonitrile, and optionally monomers useful for polyamide production, with water, comprises the following steps:

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(1) reacting the mixture with water at a temperature from 90 to 400°C and a pressure from 0.1 to 35×10^6 Pa to obtain a reaction mixture,

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(2) further reacting the reaction mixture at a temperature from 150 to 400°C and a pressure which is lower than the pressure in step 1, the temperature and pressure being selected so as to obtain a first gas phase and a first liquid or a first solid phase or a mixture of first solid and first liquid phase, and the first gas phase is separated from the first liquid or the first solid phase or from the mixture of first liquid and first solid phase, and

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(3) admixing the first liquid or the first solid phase or the mixture of first liquid and first solid phase with a gaseous or liquid phase comprising water at a temperature from 150 to 370°C and a pressure from 0.1 to 30×10^6 Pa to obtain a product mixture,

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wherein step (1) is carried out in the presence of a Brönsted acid catalyst selected from a beta-zeolite catalyst, a sheet-silicate catalyst or a fixed bed catalyst consisting essentially of TiO_2 comprising from 70 to 100% by weight of anatase and from 0 to 30% by weight of rutile and in which up