

Abstract

5 A continuous process for preparing a polyamide by reacting at least one aminonitrile with water comprises:

10 (1) reacting at least one aminonitrile with water at a temperature from 90 to 400°C and a pressure from 0.1 to 35×10^6 Pa in a flow tube containing a Brönsted acid catalyst selected from a beta-zeolite catalyst, a sheet-silicate catalyst or a titanium dioxide catalyst comprising from 70 to 100% by weight of anatase and from 0 to 30% by weight of rutile and in which up to 40% by weight of the titanium dioxide may be replaced by tungsten oxide to obtain a reaction mixture,

20 (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, in the presence of a Brönsted acid catalyst selected from a beta-zeolite catalyst, a sheet-silicate catalyst or a titanium dioxide catalyst comprising from 70 to 100% by weight of anatase and from 0 to 30% by weight of rutile and in which up to 40% by weight of the titanium dioxide may be replaced by tungsten oxide, 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

- 5 (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.