SUMMARY

There is provided a process for preparing a semiaromatic polyamide, in which

a) a reactant composition is provided, comprising

A) at least one unsubstituted or substituted aromatic dicarboxylic acid or a derivative thereof and

B) at least one aliphatic or cycloaliphatic diamine,

or a salt of at least one compound A) and at least one compound B),

b) the reactant composition provided in step a) is fed into at least one polymerization zone and subjected to a polymerization at elevated temperature and, at least at the start of the polymerization, at elevated pressure,

c) withdrawing a water-containing gas phase from the polymerization zone in the course of the polymerization,

with the proviso that the diamine component B) is used in the reactant composition with a stoichiometric excess of 300 to 650 meq/kg, wherein the stoichiometric excess of the diamine component B) in the reactant composition must be increased by any portion of the diamine component which is discharged from the polymerization zone together with the water-containing gas phase in the course of the polymerization.

In an aspect, there is provided a process for preparing a semiaromatic polyamide, in which

a) a reactant composition is provided, comprising

A) at least one unsubstituted or substituted aromatic dicarboxylic acid or a derivative thereof and

B) at least one aliphatic or cycloaliphatic diamine,

or a salt of at least one compound A) and at least one compound B),

b) the reactant composition provided in step a) is fed into at least one polymerization zone and subjected to a polymerization at a temperature of 150 to 290°C and, at least at the start of the polymerization, at an absolute pressure of at least 5 bar,

c) withdrawing a water-containing gas phase from the polymerization zone in the course of the polymerization,

with the proviso that the diamine component B) is used in the reactant composition with a stoichiometric excess of 300 to 650 meq/kg, and if in the course of the polymerization, a portion of the diamine component is discharged from the polymerization zone together with the water-containing gas phase, the excess of the diamine component B) in the reactant composition must be correspondingly higher.

In another aspect, there is provided a semiaromatic polyamide obtainable by a process as defined above and hereinafter.

In another aspect, there is provided a polyamide molding composition comprising at least one polyamide, obtainable by a process as defined above and hereinafter. In a further aspect, there is provided a molding produced from such a polyamide molding composition as defined above and hereinafter.

The disclosure further provides for the use of a semiaromatic polyamide, or of a molding composition as defined above and hereinafter, for production of electrical and electronic components and for high-temperature automotive applications.

In a further aspect, there is provided the use of a semiaromatic polyamide obtainable by a process as defined above and hereinafter or of a molding composition as defined above and hereinafter for production of electrical and electronic components and for high-temperature automotive applications.

Claims

1. A process for preparing a semiaromatic polyamide, in which

a) a reactant composition is provided, comprising

A) at least one unsubstituted or substituted aromatic dicarboxylic acid or a derivative thereof and

B) at least one aliphatic or cycloaliphatic diamine,

or a salt of at least one compound A) and at least one compound B),

b) the reactant composition provided in step a) is fed into at least one polymerization zone and subjected to a polymerization at a temperature of 150 to 290°C and, at least at the start of the polymerization, at an absolute pressure of at least 5 bar,

c) withdrawing a water-containing gas phase from the polymerization zone in the course of the polymerization,

with the proviso that the diamine component B) is used in the reactant composition with a stoichiometric excess of 300 to 650 meq/kg, and if in the course of the polymerization, a portion of the diamine component is discharged from the polymerization zone together with the water-containing gas phase, the excess of the diamine component B) in the reactant composition must be correspondingly higher.

2. The process according to claim 1, wherein the difference between the stoichiometric excess of the diamine component B) in the reactant composition and the portion of the diamine component B) discharged from the polymerization zone together with the water-containing gas phase is in the range from 10 to 600 meq/kg, preferably 50 to 500 meq/kg, especially 100 to 400 meq/kg.

3. The process according to either of claims 1 and 2, wherein the reactant composition provided in step a) does not comprise any further components capable of amide formation in addition to components A) and B).