

ABSTRACT

HOMOGENEOUS POLY(ALKYLENE) GUANIDINES AND METHOD FOR THE PRODUCTION THEREOF

The invention relates to a method for the production of poly(alkylene) guanidines, comprising at least the following steps:

- 5 a) providing an alkylene diamine of the formula $\text{NH}_2\text{-(CH}_2\text{)}_m\text{-NH}_2$ where $m = 4\text{-}12$, in particular 6-10, in a reaction vessel and heating of the alkylene diamine to a temperature equal to or above the melting temperature of the respective alkylene diamine, typically to a temperature in a range from 25°C to 115°C, preferably of 55°C to 110°C, as a result of which a melt of the alkylene diamine is formed;
 - 10 b) portion-wise adding of a guanidinium salt, in particular guanidinium HCl, and reacting with the alkylene diamine until the formation of alkylene(guanidine) monomers is concluded;
 - c) reacting the monomers formed in step b) at at least the minimum temperature at which the polymerisation to the desired poly(alkylene) guanidine begins until the formation of the
 - 15 poly(alkylene) guanidine is concluded;
- wherein steps a) and b) for the formation of alkylene(guanidine) monomers are carried out at a temperature below the minimum polymerisation temperature and all of the method steps are carried out while stirring.
- 20 A further aspect of the invention relates to the homogeneous poly(alkylene) guanidines which are obtainable with the method described above which have a content of at least 85% by weight, in particular at least 90% or 97%, of a desired linear poly(alkylene) guanidine with 3-14, preferably 4-10, alkylene monomer units in the molecule as the main product and a content of by-products, in particular branched isomers of this poly(alkylene) guanidine, of at
 - 25 most 15%, 10%, 5% or 3%.

[No Suitable Figure]