Patent claims:

1. Process for the preparation of a hydroxy-amino polymer, comprising the steps:

a) reacting an H-functional starter compound carrying at least one Zerewitinoff-active H atom with an unsaturated cyclic carboxylic acid anhydride to give a carboxyl-group-carrying prepolymer,

b) reacting the carboxyl-group-carrying prepolymer with at least one epoxide compound to give a hydroxyl-group-carrying prepolymer,

c) adding a primary amine and/or ammonia to the double bond of the hydroxyl-group-carrying prepolymer obtained according to step b) to give the hydroxy-amino polymer,

wherein the ratio of the amount of carboxylic acid anhydride to the number of Zerewitinoff-active H atoms of the H-functional starter compound is so chosen that almost all the Zerewitinoff-active H atoms of the H-functional starter compound are reacted.

2. Process according to claim 1, characterised in that the H-functional starter compound contains from 1 to 35 Zerewitinoff-active H atoms, in particular from 1 to 8.

3. Process according to claim 1 or 2, characterised in that the H-functional starter compound is a polyhydroxy-functional polymer selected in particular from straight-chained and/or branched polyethers, polyesters, polyether polyesters, polycarbonates, polyether polycarbonates, as well as combinations thereof.

4. Process according to claim 3, characterised in that the polyether, the polyether polyester and/or the polyether polycarbonate contains ethylene oxide units, wherein the amount by weight of the ethylene oxide units in the polyether is at least 50 wt.%, in particular at least 60 wt.%.

~~5. Process according to any one of the preceding claims, characterised in that the H-functional starter compound has a mean molar weight of from 200 to 10,000 g/mol, in particular from more than 600 to 9000 g/mol, preferably from 800 to 8000 g/mol.~~

~~6. Process according to any one of the preceding claims, characterised in that the unsaturated cyclic carboxylic acid anhydride is selected from unsaturated cyclic dicarboxylic acid anhydrides, such as maleic anhydride, tetrahydrophthalic anhydride, in particular 3,4,5,6 tetrahydrophthalic anhydride, and combinations thereof.~~

~~7~~1. Process for the preparation of a hydroxy-amino polymer, comprising the steps:

a) reacting an H-functional starter compound carrying at least one Zerewitinoff-active H atom with an unsaturated cyclic carboxylic acid anhydride to give a carboxyl-group-carrying prepolymer,

b) reacting the carboxyl-group-carrying prepolymer with at least one epoxide compound to give a hydroxyl-group-carrying prepolymer,

c) adding a primary amine and/or ammonia to the double bond of the hydroxyl-group-carrying prepolymer obtained according to step b) to give the hydroxy-amino polymer,

wherein the ratio of the amount of carboxylic acid anhydride to the number of Zerewitinoff-active H atoms of the H-functional starter compound is so chosen that almost all the Zerewitinoff-active H atoms of the H-functional starter compound are reacted~~according to any one of the preceding claims~~, characterised in that the epoxide compound is selected from those having from 2 to 24 carbon atoms, in particular from ethylene oxide and/or propylene oxide.

~~8. Process according to any one of the preceding claims, characterised in that the ratio of the amount of unsaturated cyclic carboxylic acid anhydride to the number of Zerewitinoff-active H atoms of the H-functional starter compound is at least from 0.9:1 to 1.5:1, in particular from 0.98:1 to 1.2:1.~~

~~9. Process according to any one of the preceding claims, characterised in that the primary amine is selected from aliphatic, cycloaliphatic and/or araliphatic mono- or di-amines having at least one primary amino group.~~

~~10. Process according to any one of the preceding claims, characterised in that a catalyst is added to the reaction mixture at the same time as or prior to the reaction of the carboxyl group-carrying prepolymer with the epoxide compound, wherein the catalyst is in particular selected from tertiary amines, preferably diazabicyclo-octane, N-methyldiethanolamine, dimethylethanolamine, bis(2-(dimethylamino)-ethyl) ether, diazabicyclo[5.4.0]undec-7-ene, dialkylbenzylamine, dimethyl-piperazine, 2,2'-dimorpholinyl-diethyl ether and pyridine or combinations thereof.~~

~~11. Hydroxy-amino-polymer obtainable by a process according to any one of claims 1 to 10, wherein the ratio of the amount of unsaturated cyclic carboxylic acid anhydride to the number of Zerewitinoff-active H-atoms of the H-functional starter compound is at least approximately 0.9:1, preferably at least 0.98:1.~~

~~12. Hydroxy-amino-polymer according to claim 11, characterised in that the H-functional starter compound has a number-average of more than 600 g/mol, in particular from more than 600 to 9000 g/mol, preferably from 800 to 8000 g/mol.~~

~~13. Hydroxy-amino-polymer according to claim 11 or 12, characterised in that the ratio of hydroxyl functionalities to amine functionalities is from 1.2:1 to 1:1.2, in particular from 1.1:1 to 1:1.1, preferably from 1.05:1 to 1:1.05.~~

~~14. Polyurethane-urea-polymer obtainable by reaction of a polyisocyanate with a hydroxy-amino-polymer according to any one of claims 11 to 13.~~

~~15. Use of a hydroxy-amino-polymer according to any one of claims 11 to 13 in the preparation of a polyurethane-urea-polymer~~.