Claims:

1. A method of hydrolyzing a polyurethane, preferably produced by reacting an active hydrogen containing polyether and an organic polyisocyanate, which comprises contacting said polyurethane with water in the presence of a strong inorganic base having a pK_b value at 25°C of below 1, preferably 0.5 to -2, more preferred 0.25 to -1.5 and most preferred 0 to -1 and as catalyst a quaternary ammonium salt containing an ammonium cation containing 6 to 14 carbon atoms if the ammonium cation does not comprises a benzyl residue or containing 6 to 12 carbon atoms if the ammonium cation comprises a benzyl residue to yield an active hydrogen containing polyether, preferably polyether polyol, and an organic polyamine.

2. The method of claim 1 wherein the strong base is selected from the group consisting of alkali metal hydroxides, alkali metal oxides, alkaline earth metal hydroxides, alkaline earth metal oxides and mixtures thereof.

3. The method of claim 2 wherein the alkali metals are selected from the group consisting of Na, K and Li and mixtures thereof, most preferred Na and K and mixtures thereof and/or the alkaline earth metals are selected from the group consisting of Be, Mg, Ca, Sr, Ba and mixtures thereof, preferably Mg and Ca and mixtures thereof.

4. The method of any one of claim 1 to 3 wherein the catalyst is a quaternary ammonium salt having the general structure R_1 R_2 R_3 R_4 NX wherein R_1,R_2,R_3, and R_4 are the same or different and are hydrocarbyl groups selected from alkyl, aryl, and arylalkyl and X is selected from the group consisting of halide, preferably chloride and/or bromide, hydrogen sulfate, alkyl sulfate, preferably methylsulfate and ethylsulfate, carbonate, hydrogene carbonate, carboxylate, preferably acetate, or hydroxide.

5. The method of claim 4, wherein

   - R_1 to R_3 are the same or different and are alkyl groups with 1 to 6, preferably 1 to 5, more preferred 1 to 4, even more preferred 1 to 3, especially preferred 1 or 2 and most preferred 1 carbon atoms, wherein the alkyl groups may be linear, branched, cyclic, saturated or unsaturated, most preferred are linear, saturated alkyl groups,
   - R_4 is selected from the group consisting of alkyl groups with 3 to 11, preferably 3 to 10, more preferred 3 to 8, most preferred 4 to 6 carbon atoms, aryl groups with 6 to 11, preferably 6 to 10, and most preferred 6 to 8 carbon atoms, and aralkyl groups with 7 to 11, preferably 7 to 10, and most preferred 7 to 9 carbon atoms, wherein the

alkyl groups may be linear, branched, cyclic, saturated or unsaturated, most preferred are linear, saturated alkyl groups, and

- X is selected from the group consisting of halide, preferably chloride and/or bromide, hydrogen sulfate, alkyl sulfate, preferably methylsulfate and ethylsulfate, carbonate, hydrogene carbonate, acetate or hydroxide.

6. The method of claim 4 or 5, wherein R_4 is different from a benzyl residue and R_1 to R_4 are selected such that the sum of carbon atoms in the quaternary ammonium cation is 6 to 14, preferably 7 to 14, more preferred 8 to 13.

7. The method of claims 4 or 5, wherein R_4 is a benzyl residue, R_1 to R_3 are selected such that the sum of carbon atoms in the quaternary ammonium cation is 6 to 12, preferably 7 to 12, more preferred 8 to 11.

8. The method of any one of claims 1 to 7 comprising the additional steps of separating and recovering the organic polyamine and/or an active hydrogen containing polyether, preferably polyether polyol.

9. The method of any one of claims 1 to 8 wherein the polyurethane is foamed.

10. The method of any one of claims 1 to 9, wherein the polyurethane is reacted with water, the base and the catalyst,

at a temperature of from 80°C to 200°C, preferably 90°C to 180°C, more preferred 95°C to 170°C and most preferred 100°C to 160°C

and/or

for 1 minute to 14 hours, preferably 1 minute to 12 hours, more preferred 5 minutes to 12 hours, even more preferred 10 minutes to 11 hours, particular preferred 20 minutes to 10 hours, especially preferred 20 minutes to 8 hours and most preferred 20 minutes to 7 hours

and/or

at atmospheric pressure.

11. The method of any one of claims 1 to 10 wherein at least 0.5 weight percent catalyst, based on the weight of the polyurethane, is used, more preferably 0.5 to 15 weight percent, even more preferred 1 to 10 weight percent, particular preferred more 1 to 8 weight percent, especially preferred 1 to 7and most preferred 2 to 6 weight percent.

12. The method of any one of claims 1 to 11 wherein the weight ratio of base to polyurethane is from 0.01 to 25, preferably 0.1 to 15, more preferred 0.2 to 10, even more 0.5 to 5.

13. The method of any one of claims 1 to 12 wherein a base solution comprising a base and water is used, preferably a base solution wherein the concentration of base, based on the weight of the base solution, is higher than or equal to 5 weight %, preferably 5 to 70 weight percent, more preferred 5 to 60 weight percent, even more preferred 10 to 50 weight percent, particular preferred 15 to 40 weight percent and most preferred 20 to 40 weight percent.