Patent claims

1. Process for the preparation of triacetone amine, comprising the reaction steps

   a) reaction of an acetone equivalent with a first base, selected from ammonia, in the presence of a catalyst, giving a product mixture which comprises acetone;
   b) ~~deactivation~~ stopping the catalytic activity of the catalyst used in step a) of the product mixture ~~from step a)~~ by adding a further base, wherein the further base is a base different from ammonia and has a lower pK_B value than ammonia, giving a triacetone amine crude product which comprises acetone;
   c) removal of acetone from the triacetone amine crude product from step b), giving an acetone-depleted triacetone amine crude product;
   d) extraction of the acetone-depleted triacetone amine crude product from step c) by adding an auxiliary, characterized in that a base is used as auxiliary in step d), thus desalting the solution obtained after step c) of the process, giving an extracted triacetone amine crude product.

2. Process according to Claim 1, characterized in that, in a further step e), the extracted triacetone amine crude product from step d) is purified to give triacetone amine.

3. Process according to Claim 1 or 2, characterized in that the acetone equivalent is one or more of the compounds selected from the group consisting of acetone, mesityl oxide, diacetone alcohol, phorone, diacetone amine, acetonin.

4. Process according to one or more of Claims 1 to 3, characterized in that the further base in step b) is selected from the group consisting of an alkali metal hydroxide, an alkaline earth metal hydroxide, an alkali metal carbonate, an alkaline earth metal carbonate.

5. Process according to one or more of Claims 1 to 4, characterized in that the amount of further base added in step b) is in the range from 1.0 to 2.0 molar equivalents, based on the amount of catalyst used in step a).

~~6. Process according to one or more of Claims 1 to 5, characterized in that a base is used as auxiliary in step d).~~

~~7~~6. Process according to one or more of Claims 1 to ~~6~~5, characterized in that a phase separation additionally takes place between step b) and step c).

87. Process according to one or more of Claims 1 to 76, characterized in that the reaction in step a) is carried out at temperatures in the range from 40 - 80°C.

98. Process according to one or more of Claims 1 to 87, characterized in that the removal of acetone from the triacetone amine crude product in step c) takes place by distillation.

109. Process according to one or more of Claims 1 to 98, characterized in that the catalyst in step a) is selected from the group consisting of Brönsted acids, ammonium salts of a Brönsted acid, phosphonium salts of a Brönsted acid, Lewis acids.

1110. Process according to one or more of Claims 1 to 109, characterized in that the catalyst in step a) is ammonium chloride or ammonium nitrate.

1211. Process according to one or more of Claims 1 to 1110, characterized in that the molar ratio of ammonia to catalyst in step a) is in the range 1 : 0.8 to 1 : 0.02.

1312. Process according to one or more of Claims 1 to 1211, characterized in that the extraction of the acetone-depleted triacetone amine crude product in step d) is carried out as a crossflow extraction or as a countercurrent extraction.

1413. Process according to one or more of Claims 2 to 1312, characterized in that the extracted triacetone amine crude product in step e) is purified by distillation to give triacetone amine.