CLAIMS

1. Method for decomposing polyurethane, wherein a polyurethane-containing material is heated to a temperature from 190 °C to 250 °C under overpressure in the presence of an aqueous solution containing 1 to 45 mass percent urea.

2. Method according to Claim 1, characterized in that heating takes place under a pressure from 1.05 bar to 100 bar.

3. Method according to any one of the preceding claims, characterized in that the overpressure is an equilibrium pressure established upon heating.

4. Method according to any one of the preceding claims, characterized in that the heating takes place over a period from 20 minutes to 240 minutes.

5. Method according to any one of the preceding claims, characterized in that the aqueous solution comprises 2.5 – 10 mass percent urea, and the heating takes place over a period from 45 – 250 min.

6. Method according to any one of the preceding claims, characterised in that the heating takes place over a period of 45 to 240 min.

7. Method according to any one of the preceding claims, characterized in that the ratio between urea-containing aqueous solution and polyurethane-containing material has a value from 0.4 ml/g to 5 ml/g.

8. Method according to any one of the preceding claims, characterized in that after heating at least some of the liquid process medium obtained is recovered.

9. Method according to Claim 8, characterized in that solids are removed from the recovered liquid process medium.

10. Method according to any one of the preceding claims, characterized in that the aqueous solution is free from polyols and/or free from carboxylic acid and/or free from ammonia.

11. Method according to any one of the preceding claims, characterized in that the aqueous solution consists of water and urea.

12. Liquid process medium, obtainable with a method according to any one of the preceding claims, wherein the heating takes place at a temperature from 190 °C to 250 °C over a period from 20 minutes to 240 minutes, wherein the aqueous solution contains 1 to 10 mass percent urea and the ratio between urea-containing aqueous solution and polyurethane-containing material has a value from 0.4 ml/g to 5 ml/g.