Claims

1. Method for producing a foam of poly(meth)acrylimide, wherein a mixture comprising (meth)acrylonitrile, (meth)acrylic acid, a polyol having between 2 and 10 hydroxyl groups, at least one initiator and at least one blowing agent is polymerized to form a slab or a powder, is optionally temperature-conditioned, and then is foamed at a temperature between 120 and 300°C,
wherein the amount of polyol in the mixture is selected such that the hydroxyl number is between 0.0008 and 0.2 mol of OH groups/100 g of polymer, and
wherein the polyol is a diol and the diol is ethylene glycol, 1,10-decanediol, beta-hydroxyalkylamides, OH-telechelic polytetrahydrofuran having an average molar mass between 500 and 8000 g/mol, or comprises OH-telechelic polyolefins, polycarbonates, polyoxymethylenes, polyethylene glycols, polypropylene glycols each having a molar mass between 200 and 10 000 g/mol.

2. Method for producing a foam of poly(meth)acrylimide, wherein a mixture comprising (meth)acrylonitrile, (meth)acrylic acid, a polyol having between 2 and 10 hydroxyl groups, at least one initiator and at least one blowing agent is polymerized to form a slab or a powder, is optionally temperature-conditioned, and then is foamed at a temperature between 120 and 300°C,
wherein the amount of polyol in the mixture is selected such that the hydroxyl number is between 0.0008 and 0.2 mol of OH groups/100 g of polymer, and
wherein the polyol comprises glycerol, pentaerythritol, xylitol, alditols, another sugar alcohol, polyglycerols or polyesters.

3. Method according to at least one of Claims 1 to 2, wherein
the amount of polyol in the mixture is selected such that the hydroxyl number is between 0.001 and 0.1 mol of OH groups/100 g of polymer.

4. Method according to at least one of Claims 1 to 3, wherein the mixture consists of
- 20 to 60 wt% of (meth)acrylonitrile,
- 40 wt% to 78 wt% of (meth)acrylic acid,
- 0 to 20 wt% of further monofunctional, vinylically unsaturated monomers,
- one or more polyols in an amount such that the hydroxyl number of the mixture is between 0.0008 and 0.2 mol of OH groups/100 g of polymer, preferably between 0.001 and 0.1 mol of OH groups/100 g of polymer,
- 1 wt% to 15 wt% of a blowing agent, of a copolymerizable blowing agent or of a blowing agent mixture,
- optionally 0 to 5 wt% of further crosslinkers,
- an initiator system and
- customary additional substances.

5. Use of a foam of poly(meth)acrylimide, produced by means of a method according to at least one of Claims 1 to 4, for producing space, air, water, rail or land vehicles, wind turbines or sports equipment.

6. Use of a foam of poly(meth)acrylimide, produced by means of a method according to at least one of Claims 1 to 4, for producing bead foams, sandwich materials, or pultrudates filled with the foam.

7. Use of a bead foam, sandwich material, or pultrudate filled with the foam, produced according to Claim 6, for producing space, air, water, rail or land vehicles, wind turbines or sports equipment.