Claims

1. Moulding comprising a matrix obtainable from the reaction of a polyaryletherketone (PAEK) with at least one crosslinker capable of thermal crosslinking with the keto groups of the PAEK to form at least two imine groups per crosslinker molecule, the crosslinker being selected from
   a) polyamides selected from PA 4.T, PA 5.T, PA 6.T, PA 9.T, PA 8.T, PA 10.T, PA 12T and mixtures thereof,
   b) saturated alicyclic compounds which are different from a) and have a t least two primary amino groups,

   and mixtures thereof
   wherein the amount of the crosslinker is 0.1 to 10 wt % based on the total weight of polyaryletherketone and crosslinker.

2. Moulding according to Claim 1, which comprises at least one filling and reinforcing agent and/or at least one additive different therefrom.

3. Moulding according to any of Claims 1 or 2 , in the form of a coating.

4. Process for producing a moulding, comprising the steps of
   i) providing a mixture comprising at least one polyaryletherketone and at least one crosslinker selected from
      a) polyamides selected from PA 4.T, PA 5.T, PA 6.T, PA 9.T, PA 8.T, PA 10.T, PA 12T and mixtures thereof
      b) saturated alicyclic compounds which are different from a) and have at least two primary amino groups,

      and mixtures thereof,

wherein the amount of the crosslinker is 0.1 to 10 wt % based on the total weight of polyaryletherketone and crosslinker,

ii) producing a moulding from the mixture obtained in step i), and

iii) thermally treating the moulding at a temperature at which the polyaryletherketone is crosslinked.

5. Process according to Claim 4, where in step i) the at least one polyaryletherketone, the at least one crosslinker, optionally a filling and reinforcing agent and optionally at least one further additive, different therefrom, are subjected to melt mixing and/or dry mixing.

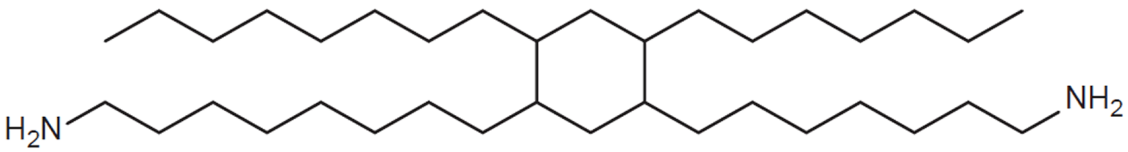
6. Process according to Claim 4, where in step i) the at least one polyaryletherketone, the at least one crosslinker, optionally a filling and reinforcing agent and optionally at least one further additive, different therefrom, are fed into an extruder, mixed with plastification and optionally pelletized.

7. Process according to any of Claims 4 to 6, where the crosslinker provided in step i) is selected to an extent of at least 20 wt%, preferably at least 50 wt%, more preferably at least 80 wt%, more particularly at least 90 wt%, especially at least 99 wt%, based on the total weight of the crosslinker, from:

a) polyamides selected from PA 4.T, PA 5.T, PA 6.T, PA 9.T, PA 8.T, PA 10.T, PA 12T and mixtures thereof,

b) saturated alicyclic compounds which are different from a) and have at least two primary amino groups, and mixtures thereof.

8. Process according to any of Claims 4 to 7, where the crosslinker is a saturated alicyclic compound which has at least two primary amino groups, selected from aminated dimer fatty acids, oligomers/polymers which comprise aminated dimer fatty acids in copolymerized form, and mixtures thereof, more particularly the compound



or oligomers/polymers which comprise this compound in copolymerized form.

9. Process according to any of Claims 4 to 8, where the polyaryletherketone is a polyetherketone (PEK), a polyetheretherketone (PEEK) or a polyetheretheretherketone (PEEEK).

10. Process according to any of Claims 4 to 9, where the mixture comprises no added solvent.

11. Process according to any of Claims 4 to 10, where the temperature in step iii) is at least 300°C.

12. Process according to any of Claims 4 to 11, where the mixture in step ii) is processed by extrusion, compression moulding, injection moulding and/or additive manufacturing processes.

13. Process according to any of Claims 4 to 12, wherein during and/or after the thermal treatment in step iii) the moulding is subjected to a treatment in the presence of an oxygen-containing gas.

14. Moulding obtainable by a process as defined in any of Claims 4 to 13.

15. Polymer mixture comprising at least one polyaryletherketone (PAEK) and at least one crosslinker selected from

a) polyamides selected from PA 4.T, PA 5.T, PA 6.T, PA 9.T, PA 8.T, PA 10.T, PA 12T and mixtures thereof,

b) saturated alicyclic compounds which are different from a) and have at least two primary amino groups,

and mixtures thereof,

wherein the amount of the crosslinker is 0.1 to 10 wt % based on the total weight of polyaryletherketone and crosslinker.

16. Moulding precursor obtainable by a process comprising steps i) and ii) as defined in any of Claims 4 to 13.

17. Use of a moulding as defined in any of Claims 1 to 3, or obtainable by a process as defined in any of Claims 4 to 13, in the sectors of motor vehicles, shipping, aerospace, rail vehicles, oil and gas industry, food and packaging industry and medical devices.

18. Sealing articles, thrust washers, back-up rings, valves, connectors, insulators, snap hooks, bearings, bushes, films, powders, coatings, fibres, sealing rings and O-rings, tubes and conduits, cables, sheaths and jackets, housings of an electrical or chemical application, consisting of or comprising a moulding as defined in any of Claims 1 to 3 or obtainable by a process as defined in any of Claims 4 to 13.