CLAIMS

1. A modified polypropylene-based cooling tower filler, comprising the following components: polypropylene: 100 parts, ethylene-propylene copolymer: 10 parts, polypropylene grafted maleic anhydride: 10 parts, initiator: 0.05-2 Parts, modifier: 2-20 parts, antioxidant: 0.1-2 parts, carbon material: 5-15 parts, fiber: 5-20 parts, filler: 10-30 parts.

2. A modified polypropylene-based cooling tower filler stated in claim 1, comprising a mixture of homopolymer polypropylene and copolymerized polypropylene at a ratio of between 1:3 and 3:1.

3. A modified polypropylene-based cooling tower filler stated in claim 1, comprising modifiers selected from at least one of the following three: methyl allyl polyoxyethylene ether, allyl alcohol polyoxyether or (and) allyl polyoxyethylene ether; comprising the carbon materials selected from at least one of the following: carbon fibers, multi-walled carbon nanotubes, single-arm carbon nanotubes and graphene, after surface modification; comprising the initiator of dicumyl peroxide or benzoyl peroxide.

4. A modified polypropylene-based cooling tower filler stated in claim 3, comprising the CO methallyl polyoxyethylene or allyl polyoxyethylene ether with a molecular weight of 1,000 to 4,000.

5. A modified polypropylene-based cooling tower filler stated in claim 1, comprising the antioxidant of a mixture of the main antioxidant 1010 and the secondary antioxidant 168, with the mass ratio of 3:1.

6. A modified polypropylene-based cooling tower filler stated in claim 1, comprising the fibers selected from at least one of the following fibers with a length of 2-8 mm.: glass fibers, basalt fibers, boron fibers, ceramic fibers and modified aramid fibers.

7. A modified polypropylene-based cooling tower filler stated in claim 1, comprising the filler of a polypropylene-based calcium carbonate masterbatch, of which 60% is calcium carbonate.

8. A process to produce the modified polypropylene-based cooling tower filler stated in claim 1, comprising the following steps:

1) the raw materials are weighed according to the ratio stated in claim 1;
2) the modifier and initiator are dissolved in absolute ethanol to form a solution or a turbid liquid;
3) polypropylene, ethylene propylene copolymer, polypropylene grafted maleic anhydride, antioxidant, carbon materials, fibers and fillers are mixed evenly and then calendered in an open mill;
4) after the materials in (3) are completely plasticized, the solution or turbid liquid disposed in (2) is sprayed onto the surface of the plasticized materials by a spray device to carry out a graft reaction; mixing and calendaring of the triangle pack continues for another 5-15 minutes after the spraying is complete, to ensure a thorough grafting reaction. the synthetic material of polypropylene-based cooling tower filler can then be obtained;
5) the synthetic material in (4) is extruded into a sheet, and then compression-molded to obtain a flat sheet of the polypropylene-based cooling tower filler.

9. A process to produce the modified polypropylene-based cooling tower filler stated in claim 8, comprising step (4) with the grafting reaction at a reaction temperature of 175-210 ℃.

10. A process to produce the modified polypropylene-based cooling tower filler stated in claim 8, comprising the duration between the beginning of plasticization and the end of mixing and calendering process being between 20 and 40 minutes.