

CLAIMS

1. An environmentally friendly material for outdoor seats, comprising the following raw materials in parts by weight: 70-90 parts of polylactic acid (PLA), 20-50 parts of polycarbonate (PC), 2-5 parts of compatibilizer, 1-4 parts of lubricant, 1-3 parts of antioxidant, 3-6 parts of functional fiber filler, and 2-5 parts of antibacterial and antifungal component.

2. The environmentally friendly material for outdoor seats according to claim 1, wherein the compatibilizer is ethylene-methyl acrylate-glycidyl methacrylate; the lubricant is polyethylene (PE) wax; and the antioxidant is an antioxidant 1010 or an antioxidant 168.

3. The environmentally friendly material for outdoor seats according to claim 1, wherein a preparation method of the functional fiber filler comprises the following steps:

S1: mixing quartz fibers with N,N-dimethylformamide, raising a temperature to 60-80°C, adding chloroethyl isocyanate and a catalyst A, reacting for 2-4 hours, and performing suction filtration, washing and drying to obtain modified quartz fibers; and

S2: adding the modified quartz fibers into toluene, followed by mixing uniformly, introducing nitrogen, raising the temperature to 70-80°C, adding 2,2,6,6-tetramethyl-4-piperidinol and an alkaline catalyst, reacting for 3-5 hours, and performing suction filtration, washing and drying to obtain the functional fiber filler.

4. The environmentally friendly material for outdoor seats according to claim 3, wherein in S1, the catalyst A is dibutyltin dilaurate or stannous octoate.

5. The environmentally friendly material for outdoor seats according to claim 3, wherein in S2, the alkaline catalyst is sodium carbonate solution or potassium carbonate solution.

6. The environmentally friendly material for outdoor seats according to claim 1, wherein a preparation method of the antibacterial and antifungal component is as follows:

adding polyamidoamine into toluene and stirring a mixture uniformly, adding an acid anhydride modifier, reacting at a room temperature for 1-3 hours, raising the temperature to 80-100°C, adding diniconazole and catalyst B, maintaining the temperature for reaction for 3-5 hours, followed by cooling to the room temperature, and discharging a material to obtain the antibacterial and antifungal component.

7. The environmentally friendly material for outdoor seats according to claim 6, wherein the acid anhydride modifier is succinic anhydride or glutaric anhydride.

8. The environmentally friendly material for outdoor seats according to claim 6, wherein the

catalyst B is p-toluenesulfonic acid.

9. A production process of the environmentally friendly material for outdoor seats according to claim 1, comprising the following steps:

step 1: adding PLA, PC, compatibilizer, lubricant, antioxidant, functional fiber filler and
5 antibacterial and antifungal component into a high-speed mixer, raising a temperature to 60-90°C, followed by mixing for 1-2 hours to obtain a premix; and

step 2: placing the premix in a twin-screw extruder, and performing melt extrusion and granulation to obtain the environmentally friendly material.

10. The production process of the environmentally friendly material for outdoor seats
10 according to claim 9, wherein in step 2, an extrusion temperature of the twin-screw extruder is 180-220°C, and a screw rotation speed is 100-400 r/min.