Nickel-Plated Carbon Fiber Film, Manufacturing Method of Nickel-Plated Carbon Fiber Film, Shielding Structure and Preparation Method of Shielding Structure

Cross-Reference to Related Applications

The present disclosure claims priority to Chinese Patent Application No. 201710941915.6, entitled “Nickel-Plated Carbon Fiber Film, Manufacturing Method of Nickel-Plated Carbon Fiber Film, Shielding Structure and Preparation Method of Shielding Structure”, filed on September 30, 2017.

Technical Field

The present disclosure relates to the field of shielding materials, and in particular, to a nickel-plated carbon fiber film, a manufacturing method of the nickel-plated carbon fiber film, a shielding structure and a preparation method of the shielding structure.

Background

It is well-known that shielding effectiveness is a basis of measuring capacity of an electromagnetic shielding composite material. A shielding effectiveness requirement of general industrial electronic equipment is greater than 30 dB, but about a shielding material of precise instrument equipment, 50 dB and even more than 60 dB of the shielding effectiveness is required, at the same time the material must also have good environment using stability, so the electronic equipment can be steadily worked in various environments.

It is known according to numerous reports that various conductive high-molecular materials realize higher physical and mechanical properties while the shielding effectiveness thereof is difficult to meet the using requirement, but the physical and mechanical properties of the composite material massively doped with conductive filler are also difficult to meet actual use.

Summary

A main purpose of the present disclosure is to provide a nickel-plated carbon fiber film, a manufacturing method of the nickel-plated carbon fiber film, a shielding structure and a preparation method of the shielding structure, as to solve a problem that a nickel-plated carbon fiber film in an existing technology does not have both the better physical and mechanical properties and shielding effectiveness.

In order to achieve the purpose, according to one aspect of the present disclosure, a nickel-plated carbon fiber film is provided, the nickel-plated carbon fiber film includes: at least one carbon fiber base fabric, and metal colloid particles are

50 min.

18. A preparation method of a shielding structure, the preparation method comprises a manufacturing process of at least one shielding component, wherein the manufacturing process comprises the manufacturing method of the nickel-plated carbon fiber film as claimed in any one of claims 8 to 17.

19. The preparation method as claimed in claim 18, wherein the manufacturing process further comprises:

providing a carbon fiber fabric; and

arranging at least one metal net and the nickel-plated carbon fiber film on the carbon fiber fabric sequentially,

preferably the manufacturing process further comprises:

arranging at least one permalloy layer on a surface, away from the metal net, of the nickel-plated carbon fiber film, as to form a pre-shielding component.

20. The preparation method as claimed in claim 19, wherein the preparation method further comprises:

hot pressing on the pre-shielding component or hot pressing on a plurality of stacked pre-shielding components, as to form the shielding structure,

preferably wherein a process of the hot pressing comprises:

arranging an adhesive between the adjacent structure layers to be hot pressed, as to form a pre-hot press structure;

pressing the pre-hot press structure; and

curing the adhesive in the pre-hot press structure after pressing,

preferably the adhesive comprises 80-120 parts by weight of epoxy resin, 60-80 parts by weight of curing agent, and 0.5-2.5 parts by weight of accelerant, preferably the curing agent is methyl tetrahydrophthalic anhydride, the accelerant is boron trifluoride ethylamine,

further preferably a pressure of the pressing is between 0.4 MPa and 0.8 MPa, and

more preferably the curing is heat curing, and a temperature of the heat curing is between 120ºC and 150ºC, and a time of the heat curing is between 1 h and 3 h.