Claims

1. A method of producing an apron board on high-speed rail equipment cabinet with a composite material, the characteristic lies in:

the composite material comprising:

aramid fiber honeycomb, PET foam, 3K carbon fiber flame retardant prepreg, unidirectional carbon fiber flame retardant prepreg, glass fiber flame retardant prepreg, aramid flame retardant prepreg, 300g/m^2 of single component blue epoxy adhesive; and

the method of producing an apron board on high-speed rail equipment cabinet with the composite material comprises the following steps:

(1) making an apron main board;

(2) making an apron board strip; wherein the apron board strip includes two kinds, two pieces of each kind and with a total of four pieces;

(3) assembling the apron main board and the four pieces of apron board strips to make the apron board;

wherein among the four pieces of apron board strips, two of which face with each other are of the same kind, and all the pieces of apron board strips are stuck to the apron main board, and

wherein the apron main board is made of the composite material in a lamination design.

2. The method according to claim 1, wherein the apron main board is designed in a lamination sequence from outside to inside:

1 layer of 198~200 g/m^2 3K carbon fiber flame retardant prepreg;

5~8 layers of 300~315 g/m^2 glass fiber flame retardant prepreg;

2 layers of 235~240g/m^2 aramid flame retardant prepreg;

2 layers of 100~150g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 100 ~ 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 piece of aramid honeycomb with thickness of 16.4mm;

1 layer of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 300 g/m^2 of single component blue epoxy adhesive;

2 layers of 100 ~ 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

4 layers of 300 ~315 g/m^2 glass fiber flame retardant prepreg;

1 layer of 198~200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted in a mold cavity closely and taken shape in a hot press machine with temperature setting of 130-150°C, molding time of 3600-3800s, pressure setting of 4mpa-6mpa.

3. The method according to claim 1, wherein the apron main board is designed in a lamination sequence from outside to inside:

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

6 layers of 300 g/m^2 glass fiber flame retardant prepreg;

3 layers of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 100 ~ 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 piece of aramid honeycomb with thickness of 16.4mm;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

4 layers of 300 g/m^2 of glass fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted in a mold cavity closely and taken shape in a hot press machine with temperature setting of 130°C, molding time of 3600s, pressure setting of 4mpa.

4. The method according to claim 1, wherein the apron main board is designed in a lamination sequence from outside to inside:

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

7 layers of 300 g/m^2 glass fiber flame retardant prepreg;

2 layers of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 piece of aramid honeycomb with thickness of 16.4mm;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

4 layers of 300 g/m^2 of glass fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted in a mold cavity closely and taken shape in a hot press machine with temperature setting of 140°C, molding time of 3600s, pressure setting of 4mpa.

5. The method according to claim 1, wherein the apron main board is designed in a lamination sequence from outside to inside:

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

6 layers of 300 g/m^2 glass fiber flame retardant prepreg;

3 layers of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 piece of aramid honeycomb with thickness of 16.4mm;

1 layer of 300g/m^2 of single component blue epoxy adhesive;

2 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

4 layers of 300 g/m^2 of glass fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted in a mold cavity closely and taken shape in a hot press machine with temperature setting of 150°C, molding time of 3600s, pressure setting of 4mpa.

6. The method according to claim 1, wherein the apron board strip is molded by vacuum bagging; the apron board strips are designed in a lamination sequence from inside to outside:

1~2 layers of 300 ~315 g/m^2 glass fiber flame retardant prepreg;

4~6 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235~240 g/m^2 aramid flame retardant prepreg;

2 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235~240 g/m^2 aramid flame retardant prepreg;

4~6 layers of 100~150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 198~200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted closely in a mold cavity and taken shape after air duct installation on a hot press machine with temperature setting of 130-150°C, molding time of 3600-3800s, pressure setting of 4mpa-6mpa, and internal pressure of the air duct is 1 MPa.

7. The method according to claim 1, wherein the apron board strip is molded by vacuum bagging; the apron board strips are designed in a lamination sequence from inside to outside:

1 layer of 300 g/m^2 glass fiber flame retardant prepreg;

6 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

6 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted closely in a mold cavity and taken shape after air duct installation on a hot press machine with temperature setting of 130°C, molding time of 3600s, pressure setting of 4mpa, and internal pressure of the air duct is 1 MPa.

8. The method according to claim 1, wherein the apron board strip is molded by vacuum bagging; the apron board strips are designed in a lamination sequence from inside to outside:

2 layers of 300 g/m^2 glass fiber flame retardant prepreg;

4 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

6 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted closely in a mold cavity and taken shape after air duct installation on a hot press machine with temperature setting of 140°C, molding time of 3600s, pressure setting of 5mpa, and internal pressure of the air duct is 1 MPa.

9. The method according to claim 1, wherein the apron board strip is molded by vacuum bagging; the apron board strips are designed in a lamination sequence from inside to outside:

1 layer of 300 g/m^2 glass fiber flame retardant prepreg;

4 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

2 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 235 g/m^2 aramid flame retardant prepreg;

8 layers of 150 g/m^2 unidirectional carbon fiber flame retardant prepreg;

1 layer of 200 g/m^2 3K carbon fiber flame retardant prepreg;

wherein according to the lamination sequence, all the layers are pasted closely in a mold cavity and taken shape after air duct installation on a hot press machine with temperature setting of 150°C, molding time of 3600s, pressure setting of 6mpa, and internal pressure of the air duct is 1 MPa.

10. The method according to claim 1, wherein the density of the aramid fiber honeycomb is required to be 48~50kg/m^3.

11. The method according to claim 1, wherein the density of the PET foam is required to be 59~61 kg/m^3.