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(54) ABSORPTION AND DESORPTION WALLPAPER AND METHOD OF MANUFACTURING THE SAME

ADSORPTIONS- UND DESORPTIONSTAPETE UND VERFAHREN ZUR HERSTELLUNG DAVON

PAPIER PEINT À ABSORPTION ET DÉSORPTION ET SON PROCÉDÉ DE FABRICATION

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EP 2 976 461 B1

Description

Technical Field

[0001] The present invention relates to absorption and desorption wallpaper and, more particularly, to inorganic-substance absorption and desorption wallpaper using bio resin capable of preventing various kinds of diseases, such as a sick house syndrome, by controlling humidity using environment-friendly materials, and a method of manufacturing the same.

Background Art

[0002] As an interest in products harmless to the human body is recently increased, an interest in groups of environment-friendly, organic farming, and pollution-free products is increased. In particular, as damage attributable to toxic substances generated from building materials is increased, an interest in building materials for preventing a so-called sick house syndrome becomes high.

[0003] Wallpaper, that is, a kind of building material, has been marked as one of product groups that may provide the cause of a sick house syndrome. This increases an interest in environment-friendly wallpaper.

[0004] Furthermore, to properly maintain interior temperature and humidity is one of the most basic requirements for creating a comfortable interior environment, and an importance thereof is increased according to needs to pursue the improved quality of life of modern people.

[0005] However, to maintain a comfortable environment by only controlling humidity through interior ventilation is limited. Accordingly, interior humidity is controlled by attaching tiles or wallpaper having a humidity-control function to the internal wall surface of a home or building.

[0006] FIG. 1 is a side-sectional view illustrating the stack structure of conventional wallpaper having a humidity-control function.

[0007] Referring to FIG. 1, the conventional wallpaper 1 has a structure in which a lower non-woven fabric layer 10, an adhesive layer 20, an upper non-woven fabric layer 30, a print layer 40, an acrylic resin layer 50, and a silica layer 60 are stacked from the bottom.

[0008] That is, the conventional wallpaper having such a structure is fabricated by forming the print layer on the non-woven fabric layer in which a couple of non-woven fabrics are jointed, performing embossing, coating acrylic resin on the embossed result using a wiping method, and attaching silica having a property that repeats absorption and desorption (i.e., a humidity-control function) on the acrylic resin layer by scattering the silica on the acrylic resin layer in order to apply the humidity-control function to a common wallpaper exterior ornament effect.

[0009] However, a process of manufacturing such conventional wallpaper is complicated, and a cost for the process is expensive. Furthermore, the wallpaper is problematic in that there is a possibility that various kinds of toxic substances, that is, the cause of a sick house syndrome, may be generated because the wallpaper is made of chemical substances and it is difficult to maintain interior humidity.

[0010] EP 2 343 413 A2 discloses a wallpaper comprising a base layer and a sheet of biodegradable resin, wherein the resin layer may comprise an inorganic binder.

Disclosure of the Invention

Technical Problem

[0011] Accordingly, the present invention has been made in view of the above problems, and it is an object of the present invention to provide absorption and desorption wallpaper capable of implementing a comfortable interior environment and preventing various kinds of diseases, such as a sick house syndrome, by controlling humidity using environment-friendly materials, such as humidity-control materials made of bio resin and minerals, and a method of manufacturing the same.

Technical Solution

[0012] In accordance with an aspect of the present invention, provided is an absorption and desorption wallpaper, comprising: a base layer, wherein the base layer is made of non-woven fabrics made of pulp and polyester, ceramic paper, or glass paper; a bio resin layer stacked over the base layer, wherein the bio resin layer is formed by mixing citric acid of 10 ~ 50 parts by weight, $CaCo_3$ of 10 ~ 150 parts by weight, acrylic copolymer of 1 ~ 10 parts by weight, and stearic acid of 1 ~ 5 parts by weight used for 100 parts by weight of poly lactic acid (PLA) resin, mulling the mixture using a mulling machine at a temperature of 90 ~ 200°C, and performing calendering or an extrusion method; a first inorganic binder layer stacked over the bio resin layer, wherein the inorganic binder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate, and the inorganic binder layer is formed by spray coating; a first inorganic powder layer stacked over the inorganic binder layer, wherein the inorganic powder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate, and the inorganic powder layer is formed by scattering; and a surface protection layer stacked over the inorganic powder layer, wherein the surface protection layer is formed using acrylic resin and methylethylketone having a ratio of 2:8. According to the invention is also a method of manufacturing absorption and desorption wallpaper, , comprising: forming a base layer, wherein the base layer is made of non-woven fabrics made of pulp and polyester, ceramic paper, or glass paper; coating and stacking a bio resin layer over the base layer, wherein

the bio resin layer is formed by mixing citric acid of 10 ~ 50 parts by weight, $CaCo_3$ of 10 ~ 150 parts by weight, acrylic copolymer of 1 ~ 10 parts by weight, and stearic acid of 1 ~ 5 parts by weight used for 100 parts by weight of PLA resin, mulling the mixture using a mulling machine at a temperature of 90 - 200°C, and performing calendering or an extrusion method; forming a first inorganic binder layer by spraying and coating an inorganic binder on the bio resin layer, wherein the inorganic binder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate; forming a first inorganic powder layer by scattering an inorganic substance on the inorganic binder layer, wherein the inorganic powder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate; and forming a surface protection layer over the inorganic powder layer using a wiping method, wherein the surface protection layer is formed using acrylic resin and methylethylketone having a ratio of 2:8.

[0013] Further embodiments are disclosed in the dependent claims.

Advantageous Effects

[0014] In accordance with the present invention, there are advantages in that humidity can be controlled, a comfortable interior environment can be implemented, and thus various kinds of diseases, such as a sick house syndrome, can be prevented because environment-friendly materials, such as humidity-control materials made of bio resin and minerals, are used.

Brief Description of Drawings

[0015]

FIG. 1 is a side-sectional view illustrating the stack structure of conventional wallpaper having a humidity-control function;

FIG. 2 illustrates the stack structure of absorption and desorption wallpaper according to an embodiment of the present invention;

FIG. 3 is a flowchart illustrating a method of manufacturing the absorption and desorption wallpaper according to an embodiment of the present invention; and

FIG. 4 illustrates the stack structure of absorption and desorption wallpaper according to another embodiment of the present invention.

<Description of reference numerals of principal elements in the drawings>

[0016]

100: wallpaper

110: base layer

120: bio resin layer

130: inorganic binder layer

140: inorganic powder layer

150: surface protection layer

Mode for Invention

[0017] Hereinafter, the configuration and operation of the present invention according to some embodiments are described in detail below with reference to the accompanying drawings.

[0018] It is to be noted that in assigning reference numerals to elements in the drawings, the same reference numerals denote the same elements throughout the drawings even in cases where the elements are shown in different drawings.

[0019] FIG. 2 illustrates the stack structure of absorption and desorption wallpaper according to an embodiment of the present invention, and FIG. 3 is a flowchart illustrating a method of manufacturing the absorption and desorption wallpaper according to an embodiment of the present invention.

[0020] Referring to FIG. 2, the absorption and desorption wallpaper 100 according to an embodiment of the present invention is configured to include a base layer 110, a bio resin layer 120 stacked over the base layer 110, a first inorganic binder layer 130 stacked over the bio resin layer 120, a first inorganic powder layer 140 stacked over the inorganic binder layer 130, and a surface protection layer 150 stacked over the inorganic powder layer 140.

[0021] The structure of the absorption and desorption wallpaper 100 is described in detail below.

[0022] The base layer 110 is the most basic layer that keeps the overall curling balance of the upper and lower parts of the wallpaper. The base layer 110 is made of non-woven fabrics made of pulp and polyester, ceramic paper, or glass paper capable of improving absorption and desorption efficiency of the wallpaper.

[0023] In this case, the base layer 110 may have mass per unit area of 60 - 80 g/m^3. That is, if the base layer 110 has mass per unit area of less than 60 g/m^3, the strength of the wallpaper may not be sufficiently secured. If the base layer 110 has mass per unit area of more than 80 g/m^3, there is a problem in that cost of raw materials per unit area necessary to fabricate the wallpaper is un-

necessarily increased without a change of physical properties.

[0024] The bio resin layer 120 is stacked over the base layer 110. The bio resin layer 120 is formed by mixing citric acid of 10~50 parts by weight, $CaCO_3$ of 10~150 parts by weight, acrylic copolymer of 1~10 parts by weight, and stearic acid of 1~5 parts by weight used for 100 parts by weight of polylactic acid (PLA) resin, mulling the mixture using a mulling machine at a temperature of 90~200°C, and performing calendaring or an extrusion method..

[0025] Furthermore, the bio resin layer 120 may further include a nanomineral substance of 5 to 20 parts by weight that is used for 100 parts by weight of the aforementioned resin in order to improve the heat-resisting property and web-proof property of the wallpaper and compatibility between resins. In this case, the nanomineral substance may include mica, talc, or nanoclay, but the present invention is not limited thereto.

[0026] Such a nanomineral substance may have an average size of 1 - 100 nm. That is, if the size of the nanomineral substance is less than 1 nm, dispersibility, such as an undesirable agglomeration phenomenon occurring in the bio resin layer 120, may be deteriorated. If the size of the nanomineral substance exceeds 100 nm, the performance of the nanomineral substance may be reduced.

[0027] The first inorganic binder layer 130 takes advantage of the principle that an inorganic substance has the properties of adhesives due to a chemical reaction when water is mixed with the inorganic substance. Such an inorganic binder layer 130 functions as adhesives for attaching the first inorganic powder layer 140, made of mineral particles, to a top surface of the bio resin layer 120. In this case, the inorganic binder layer 130 comprises mineral particles, comprising mica, day, porous alumina, sodium silicate, and calcium silicate.

[0028] The first inorganic powder layer 140 is generally stacked over the bio resin layer 120 with the first inorganic binder layer 130 interposed therebetween in order to reduce interior toxic substances and smell in life and improve humidity-control efficiency of the wallpaper. In this case, the inorganic powder layer 140 comprises mineral particles, comprising one or more selected from mica, clay, porous alumina, sodium silicate, and calcium silicate. Such an inorganic powder layer 140 is formed using a scattering method, and may be implemented to have a nature-friendly design.

[0029] The surface protection layer 150 is stacked over the inorganic powder layer 140, and has moisture permeability. The surface protection layer 150 may be formed by coating using a wiping method. In this case, the surface protection layer 150 is formed by mixing acrylic resin and methylethylketone in the ratio of 2: 8. Such a surface protection layer 150 is formed on a top surface of the inorganic powder layer 140 made of an absorption and desorption substance using a coating processing method, thereby being capable of improving the anti-scratch property, anti-abrasion property, and durability of the wallpaper.

[0030] FIG. 4 illustrates the stack structure of absorption and desorption wallpaper according to another embodiment of the present invention.

[0031] Referring to FIG. 4, an absorption and desorption wallpaper $100_i\pm$ according to another embodiment of the present invention includes the inorganic binder layer 130 and the inorganic powder layer 140 that are repeatedly stacked on the bio resin layer 120 in order to increase the amount of a humidity-control substance and improve the absorption and desorption function.

[0032] The absorption and desorption wallpaper 100 (100_i-) according to embodiments of the present invention can control humidity and implement a comfortable interior environment because environment-friendly materials, such as bio resin and minerals, are used, and thus can prevent various kinds of diseases, such as a sick house syndrome.

<Embodiment>

1. The base layer

[0033] The base layer was prepared using non-woven fabrics made of pulp of 70% and polyester of 30%.

2. Forming the inorganic binder layer

[0034] The inorganic binder layer was formed over the base layer using one or more selected from mineral particles of mica, clay, porous alumina, sodium silicate, and calcium silicate.

3. Forming the bio resin layer

[0035] Citric acid of 10 ~ 50 parts by weight, $CaCo_3$ of 10 ~ 150 parts by weight, acrylic copolymer of 1 ~ 10 parts by weight, and stearic acid of 1 ~5 parts by weight that were used for 100 parts by weight of the PLA resin were mixed and formed over the adhesive layer. The mixture was mulled using a mulling machine at a temperature of 90 ~ 200¡É, and the bio resin layer having a thickness of about 0.15 §® was fabricated using calendering or an extrusion method.

4. Forming the surface protection layer

[0036] A coating solution for surface processing was fabricated by mixing acrylic resin of 20 wt% and methylethylketone of 80 wt%. Thereafter, the surface protection layer was coated on a surface of the bio resin layer using a wiping method.

Claims

1. Absorption and desorption wallpaper, comprising: a

base layer, wherein the base layer is made of non-woven fabrics made of pulp and polyester, ceramic paper, or glass paper; a bio resin layer stacked over the base layer, wherein the bio resin layer is formed by mixing citric acid of 10 ~ 50 parts by weight, $CaCo_3$ of 10 ~ 150 parts by weight, acrylic copolymer of 1 ~ 10 parts by weight, and stearic acid of 1 ~ 5 parts by weight used for 100 parts by weight of poly lactic acid (PLA) resin, mulling the mixture using a mulling machine at a temperature of 90 ~ 200 °C, and performing calendering or an extrusion method; a first inorganic binder layer stacked over the bio resin layer, wherein the inorganic binder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate, and the inorganic binder layer is formed by spray coating; a first inorganic powder layer stacked over the inorganic binder layer, wherein the inorganic powder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate, and the inorganic powder layer is formed by scattering; and a surface protection layer stacked over the inorganic powder layer, wherein the surface protection layer is formed using acrylic resin and methylethylketone having a ratio of 2:8.

2. The absorption and desorption wallpaper of claim 1, wherein a second inorganic binder layer is stacked over the first inorganic powder layer and a second inorganic powder layer is stacked over the second inorganic binder layer.

3. The absorption and desorption wallpaper of claim 1, wherein the base layer has mass per unit area of 60 ~ 80 g/m^2.

4. The absorption and desorption wallpaper of claim 1, wherein the surface protection layer has moisture permeability and is formed by coating using a wiping method.

5. A method of manufacturing absorption and desorption wallpaper, comprising: forming a base layer, wherein the base layer is made of non-woven fabrics made of pulp and polyester, ceramic paper, or glass paper; coating and stacking a bio resin layer over the base layer, wherein the bio resin layer is formed by mixing citric acid of 10 ~ 50 parts by weight, $CaCo_3$ of 10 ~ 150 parts by weight, acrylic copolymer of 1 ~ 10 parts by weight, and stearic acid of 1 ~ 5 parts by weight used for 100 parts by weight of PLA resin, mulling the mixture using a mulling machine at a temperature of 90 ~ 200 °C, and performing calendering or an extrusion method; forming a first inorganic binder layer by spraying and coating an inorganic binder on the bio resin layer, wherein the inorganic binder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate; forming a first inorganic powder layer by scattering an inorganic substance on the inorganic binder layer, wherein the inorganic powder layer comprises mineral particles comprising one or more selected from talc, mica, clay, porous alumina, sodium silicate, and calcium silicate; and forming a surface protection layer over the inorganic powder layer using a wiping method, wherein the surface protection layer is formed using acrylic resin and methylethylketone having a ratio of 2:8.

6. The method of manufacturing absorption and desorption wallpaper of claim 5, wherein a second inorganic binder layer is formed by spraying and coating an inorganic binder on the first inorganic powder layer, and a second inorganic powder layer is formed by scattering an inorganic substance on the second inorganic binder layer.,

Patentansprüche

1. Absorptions- und Desorptionstapete, umfassend: eine Grundschicht, wobei die Grundschicht hergestellt ist aus Vliesstoffen hergestellt aus Pulpe und Polyester, keramischem Papier oder Glaspapier; eine Bioharzschicht, die auf der Grundschicht gestapelt ist, wobei die Bioharzschicht durch Mischen von 10 - 50 Gewichtsteilen Zitronensäure, 10 - 150 Gewichtsteilen $CaCO_3$, 1 - 10 Gewichtsteilen Acrylcopolymer und 1 - 5 Gewichtsteilen Stearinsäure gebildet ist, verwendet für 100 Gewichtsteile Polymilchsäureharz (PLA), Mahlen der Mischung unter Verwendung einer Mahlmaschine bei einer Temperatur von 90 - 200°C und Durchführen eines Kalandrier- oder eines Extrusionsverfahrens; eine erste anorganische Binderschicht, die auf der Bioharzschicht gestapelt ist, wobei die anorganische Binderschicht Mineralteilchen umfassend eines oder mehrere ausgewählt aus Talk, Mica, Ton, porösem Aluminiumoxid, Natriumsilikat und Calciumsilikat umfasst, und wobei die anorganische Binderschicht durch Sprühbeschichten gebildet ist; eine erste anorganische Pulverschicht, die auf der anorganischen Binderschicht gestapelt ist, wobei die anorganische Pulverschicht Mineralteilchen umfassend eines oder mehrere ausgewählt aus Talk, Mica, Ton, porösem Aluminiumoxid, Natriumsilikat und Calciumsilikat umfasst, und wobei die anorganische Pulverschicht durch Aufstreuen gebildet ist; und eine Oberflächenschutzschicht, die auf der anorganischen Pulverschicht gestapelt ist, wobei die Oberflächenschutzschicht unter Verwendung von Acrylharz und Methylethylketon mit einem Verhältnis von 2:8 gebildet ist.

2. Absorptions- und Desorptionstapete nach Anspruch

1, wobei eine zweite anorganische Binderschicht auf der ersten anorganischen Pulverschicht gestapelt ist und eine zweite anorganische Pulverschicht auf der zweiten anorganischen Binderschicht gestapelt ist.

3. Absorptions- und Desorptionstapete nach Anspruch 1, wobei die Grundschicht eine Masse pro Flächeneinheit von 60 - 80 g/m^2 aufweist

4. Absorptions- und Desorptionstapete nach Anspruch 1, wobei die Oberflächenschutzschicht eine Feuchtigkeitspermeabilität aufweist und durch Beschichten unter Verwendung eines Wischverfahrens gebildet ist.

5. Verfahren zum Herstellen von Absorptions- und Desorptionstapete, umfassend: Bilden einer Grundschicht, wobei die Grundschicht hergestellt ist aus Vliesstoffen hergestellt aus Pulpe und Polyester, keramischem Papier oder Glaspapier; Beschichten und Aufstapeln einer Bioharzschicht auf der Grundschicht, wobei die Bioharzschicht durch Mischen von 10 - 50 Gewichtsteilen Zitronensäure, 10 - 150 Gewichtsteilen $CaCO_3$, 1 - 10 Gewichtsteilen Acrylcopolymer und 1 - 5 Gewichtsteilen Stearinsäure gebildet wird, verwendet für 100 Gewichtsteile PLA-Harz, Mahlen der Mischung unter Verwendung einer Mahlmaschine bei einer Temperatur von 90 - 200°C und Durchführen eines Kalandrier- oder eines Extrusionsverfahrens; Bilden einer ersten anorganischen Binderschicht durch Sprühen und Beschichten eines anorganischen Binders auf die Bioharzschicht, wobei die anorganische Binderschicht Mineralteilchen umfassend eines oder mehrere ausgewählt aus Talk, Mica, Ton, porösem Aluminiumoxid, Natriumsilikat und Calciumsilikat umfasst; Bilden einer ersten anorganischen Pulverschicht durch Aufstreuen einer anorganischen Substanz auf der anorganischen Binderschicht, wobei die anorganische Pulverschicht Mineralteilchen umfassend eines oder mehrere ausgewählt aus Talk, Mica, Ton, porösem Aluminiumoxid, Natriumsilikat und Calciumsilikat umfasst; und Bilden einer Oberflächenschutzschicht auf der anorganischen Pulverschicht unter Verwendung eines Wischverfahrens, wobei die Oberflächenschutzschicht unter Verwendung von Acrylharz und Methylethylketon mit einem Verhältnis von 2:8 gebildet wird.

6. Verfahren zum Herstellen von Absorptions- und Desorptionstapete nach Anspruch 5, wobei eine zweite anorganische Binderschicht durch Sprühen und Beschichten eines anorganischen Binders auf der ersten anorganischen Pulverschicht gebildet wird, und wobei eine zweite anorganische Pulvensehicht durch Aufstreuen einer anorganischen Substanz auf der zweiten anorganischen Binderschicht gebildet wird.

Revendications

1. Un papier peint à absorption et désorption composé des éléments suivants : une couche de base en non-tissés composés de pâte à papier et de polyester, de papier céramique ou de papier de verre, d'une couche de résine organique recouvrant la couche de base et cette couche de résine organique s'obtient en mélangeant de l'acide citrique (10 à 50 parties par poids), du $CaCO_3$ (10 à 150 parties par poids), un copolymère acrylique (1 à 10 parties par poids) et de l'acide stéarique (1 à 5 parties par poids) qui s'utilisent pour 100 parties par poids de résine d'acide polylactique (PLA) ; ce mélange fait l'objet d'un broyage dans une broyeuse à une température comprise entre 90 et 200°C, avec réalisation d'une procédure de calandrage ou d'extrusion ; une première couche de matériau liant inorganique vient se placer sur la couche de résine organique et cette couche de matériau liant inorganique se compose de particules minérales basées sur au moins l'un des éléments suivants : talc, mica, argile, alumine poreuse, silicate de sodium et silicate de calcium et cette couche de matériau liant Inorganique s'obtient par une enduction par pulvérisation; une première couche de poudre inorganique qui vient se placer sur la couche de matériau liant inorganique et cette couche de poudre inorganique se compose de particules minérales basées sur au moins l'un des éléments suivants : talc, mica, argile, alumine poreuse, silicate de sodium et silicate de calcium et cette couche de poudre inorganique s'obtient par dissémination ; et une couche de protection de la surface vient se placer sur la couche de poudre inorganique et cette couche de protection de la surface s'obtient en utilisant une résine acrylique et du méthyl-éthyle-cétone, dans le rapport 2 :8.

2. Le papier peint à absorption et désorption qui est décrit dans la revendication 1, si ce n'est qu'une deuxième couche de matériau liant Inorganique vient se placer sur la première couche de poudre Inorganique et qu'une deuxième couche de poudre Inorganique vient se placer sur la deuxième couche de matériau liant inorganique.

3. Le papier peint à absorption et désorption qui est décrit dans la revendication 1, si ce n'est que la couche de base a une masse par unité de surface comprise entre 60 et 80 g/m^2.

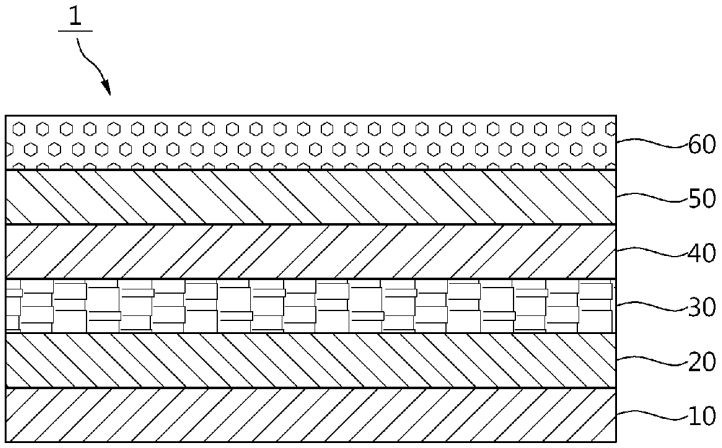
4. Le papier peint à absorption et désorption qui est décrit dans la revendication 1, si ce n'est que la couche de protection de la surface a une perméabilité à l'humidité et s'applique par enduction en faisant appel à une méthode par essuyage.

5. Un procédé de fabrication de papier peint à absorp-

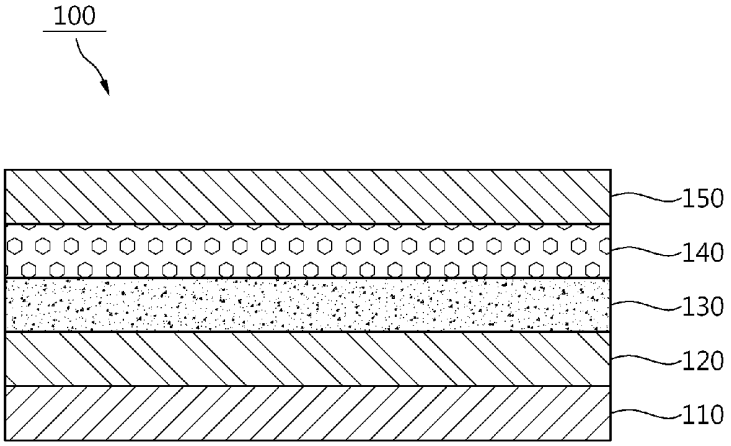
tion et désorption qui se compose des éléments suivants : réalisation d'une couche de base en non-tissés composés de pâte à papier et de polyester, de papier céramique ou de papier de verre, avec enduction et positionnement d'une couche de résine organique sur la couche de base et cette couche de résine organique s'obtient en mélangeant de l'acide citrique (10 à 50 parties par poids), du $CaCO_3$ (10 à 150 parties par poids), un copolymère acrylique (1 à 10 parties par poids) et de l'acide stéarique (1 à 5 parties par poids) qui s'utilisent pour 100 parties par poids de résine d'acide polylactique (PLA) ; ce mélange fait l'objet d'un broyage dans une broyeuse à une température comprise entre 90 et 200°C, avec réalisation d'une procédure de calandrage ou d'extrusion; réalisation d'une première couche de matériau liant inorganique en plaçant par pulvérisation et enduction un matériau liant inorganique sur la couche de résine organique et cette couche de matériau liant inorganique se compose de particules minérales basées sur au moins l'un des éléments suivants: talc, mica, argile, alumine poreuse, silicate de sodium et silicate de calcium ; réalisation d'une première couche de poudre inorganique qui s'obtient par dissémination d'une substance inorganique sur la couche de matériau liant inorganique et cette couche de poudre inorganique se compose de particules minérales basées sur au moins l'un des éléments suivants : talc, mica, argile, alumine poreuse, silicate de sodium et silicate de calcium ; formation d'une couche de protection de la surface qui vient se placer sur la couche de poudre inorganique en faisant appel à une méthode par essuyage et cette couche de protection de la surface s'obtient en utilisant une résine acrylique et du méthyl-éthyle-cétone, dans le rapport 2 :8.

6. Le procédé de fabrication de papier peint à absorption et désorption qui est décrit dans la revendication 5, si ce n'est qu'une deuxième couche de matériau liant inorganique s'obtient en plaçant par pulvérisation et enduction un matériau liant inorganique sur la première couche de poudre inorganique, et qu'une deuxième couche de poudre inorganique s'obtient en disséminant une substance inorganique sur la deuxième couche de matériau liant inorganique.

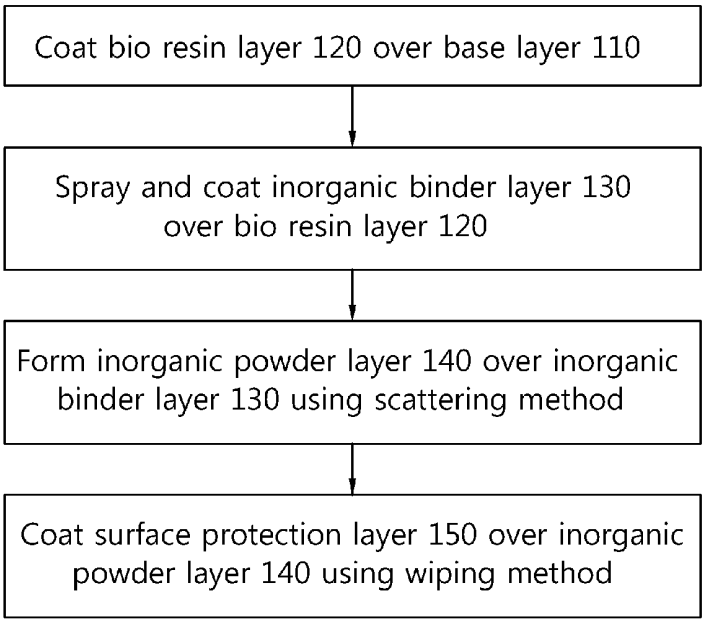
[Fig. 1]



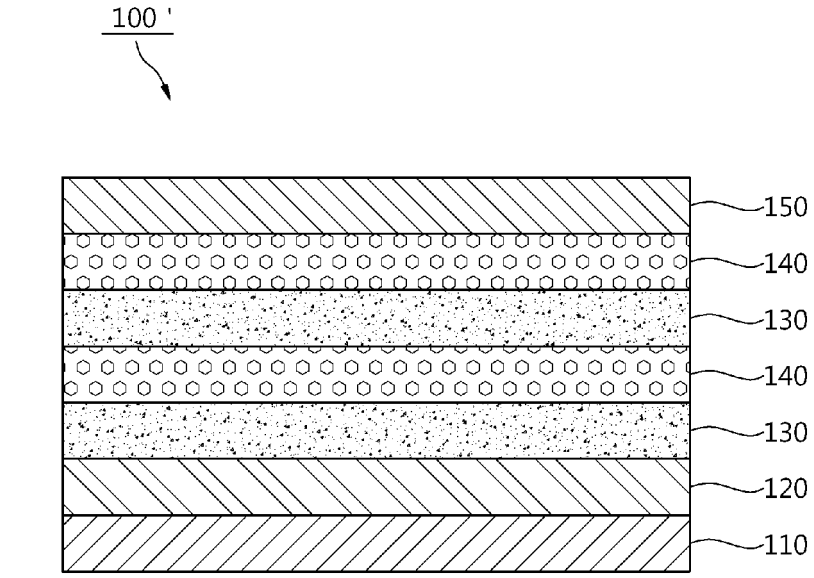
[Fig. 2]



[Fig. 3]



[Fig. 4]



REFERENCES CITED IN THE DESCRIPTION

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