CLAIMS

1. A polyacrylic acid copolymer emulsion comprising, in parts by weight, components of:

19 to 26 parts of water, 0.5 to 5 parts of a solubilizer, 0.1 to 0.5 part of a dispersant, 0.1 to 0.5 part of a wetting agent, 28 to 30 parts of a acrylic emulsion, 0.1 to 1 part of a film-forming additive, 0.2 to 0.3 part of a preservative, 0.5 to 0.6 part of a silane coupling agent, 0.5 to 0.6 part of an ultraviolet absorbent, 40 to 45 parts of a pigment, 0.1 to 0.5 part of an antimildew agent, 0.1 to 0.2 part of a defoamer and 0.1 to 0.8 part of a leveling agent.

2. A polyacrylic acid copolymer emulsion according to Claim 1, comprising, in parts by weight, components of:

19 parts of water, 1.5 parts of the solubilizer, 0.5 part of the dispersant, 0.2 part of the wetting agent, 30 parts of the acrylic emulsion, 1 part of the film-forming additive, 0.2 part of the preservative, 0.5 part of the silane coupling agent, 0.6 part of the ultraviolet absorbent, 45 parts of the pigment, 0.5 part of the antimildew agent, 0.2 part of the defoamer, and 0.8 part of the leveling agent;

or

26 parts of water, 1.5 parts of the solubilizer, 0.4 part of the dispersant, 0.2 part of the wetting agent, 28 parts of the acrylic emulsion, 1 part of the film-forming additive, 0.3 part of the preservative, 0.6 part of the silane coupling agent, 0.5 part of the ultraviolet absorbent, 40 parts of the pigment, 0.5 part of the antimildew agent, 0.2 part of the defoamer, and 0.8 part of the leveling agent.

3. A polyacrylic acid copolymer emulsion according to Claim 1, further comprising one or more of an ethylene-vinyl acetate copolymer and a styrene butadiene rubber.

4. An organic-inorganic composite waterproof coating, comprising a pressure-sensitive adhesive layer composed of a pressure-sensitive adhesive, an inorganic particle layer composed of inorganic particles, and a polymer layer, in which the three layers are formed on a substrate sequentially from a bottom to a surface,

in which the polymer layer is formed by solidifying a polyacrylic acid copolymer emulsion, and the polyacrylic acid copolymer emulsion comprises, in parts by weight, components of:

19 to 26 parts of water, 0.5 to 5 parts of a solubilizer, 0.1 to 0.5 part of a dispersant, 0.1 to 0.5 part of a wetting agent, 28 to 30 parts of a acrylic emulsion, 0.1 to 1 part of a film-forming additive, 0.2 to 0.3 part of a preservative, 0.5 to 0.6 part of a silane coupling agent, 0.5 to 0.6 part of an ultraviolet absorbent, 40 to 45 parts of a pigment, 0.1 to 0.5 part of an antimildew agent, 0.1 to 0.2 part of a defoamer, and 0.1 to 0.8 part of a leveling agent,

in which the organic-inorganic composite waterproof coating, comprising steps of:

heating a pressure-sensitive adhesive at 75 to 90 ℃ to make a viscosity of the pressure-sensitive adhesive be 25 to 40 Pa.s, and utilizing the pressure-sensitive adhesive to coat a substrate to form a pressure-sensitive adhesive layer;

spreading inorganic particles on the pressure-sensitive adhesive layer and then utilizing a pressure roller to perform the roller coating, and removing the excess inorganic particles by one method selected from the group consisting of a gravity method, a vacuum method, and a sweeping and brushing method or by a combination of a plurality of methods selected from the group, so as to form an inorganic particle layer;

using the polyacrylic acid copolymer emulsion to coat a surface of the inorganic particle layer and drying the obtained product at a temperature of 60 to 80 ℃ for 1 to 2 minutes to provide the polymer layer.

5. An organic-inorganic composite waterproof coating according to Claim 4, in which the inorganic particles in the inorganic particle layer have a coverage rate of 70 to 100% on the pressure-sensitive adhesive layer, the polymer layer has a thickness of 1 to 100 microns, and the inorganic particles have a particle diameter of 500 to 700 microns.

6. An organic-inorganic composite waterproof coating according to Claim 5, in which the inorganic particles in the inorganic particle layer have a coverage rate of 85 to 95% on the pressure-sensitive adhesive layer, the polymer layer has a thickness of 25 to 100 microns, and the inorganic particles have a particle diameter of 500 or 700 microns.

7. An organic-inorganic composite waterproof coating according to Claim 4, in which the inorganic particles are made of one selected from the group consisting of calcite, quartzite, zeolite, vermiculite, aluminous soil, shale, feldspar, perlite, silicate and aluminate, or mixture of more than one of the group.

8. An organic-inorganic composite waterproof coating according to Claim 4, in which the pressure-sensitive adhesive is one or more selected from the group consisting of butyl rubber-based adhesive, polyisobutylene-based adhesive, butyl group-based adhesive, acrylic acid-based adhesive, styrene-isoprene-styrene-based adhesive, styrene-ethylene-butylene-styrene-based adhesive, styrene-butadiene-styrene-based adhesive, styrene-butadiene rubber-based adhesive.

9. An organic-inorganic composite waterproof coating according to Claim 4, in which the pressure-sensitive adhesive layer has a thickness in a range of 50 to 500 microns;

the inorganic particles have a particle diameter of 100 to 1,000 microns, and a particle diameter gradation of the inorganic particles is of a bimodal distribution, a difference between the particle diameter of the inorganic particles with a volume percentage of 30 to 50% and the thickness of the pressure-sensitive adhesive layer is below 25% of the thickness of the pressure-sensitive adhesive layer, the particle diameter of the inorganic particles with a volume percentage of 50 to 70% is at least 25% or more larger than the thickness of the pressure-sensitive adhesive layer, and the inorganic particles have a coverage rate of 70 to 100% on the pressure-sensitive adhesive layer;

the polymer layer has a thickness of 1 to 100 microns, and the polymer layer has a coverage rate of 10 to 50% on the inorganic particle layer.

10. An organic-inorganic composite waterproof coating according to Claim 9, in which the pressure-sensitive adhesive layer has a thickness in the range of 150 to 350 microns;

the inorganic particles have a particle diameter of 200 to 700 microns; and the inorganic particles have a coverage rate of 70 to 100% on the pressure-sensitive adhesive layer;

the polymer layer has a coverage rate of 25 to 35% on the surface of the inorganic particles.

11. An organic-inorganic composite waterproof coating according to Claim 10, in which the pressure-sensitive adhesive layer has a thickness in the range of 200 to 325 microns.

12. An organic-inorganic composite waterproof coating according to Claim 11, in which the inorganic particles are selected from aluminous soil particles, and two peaks of a particle diameter distribution of the aluminous soil particles are at 250 microns and 480 microns, respectively; or

the inorganic particles are selected from shale particles, and two peaks of a particle diameter distribution of the shale particles are at 320 microns and 650 microns, respectively.

13. A method for preparing an organic-inorganic composite waterproof coating, comprising the steps of:

heating a pressure-sensitive adhesive at 75 to 90 ℃ to make a viscosity of the pressure-sensitive adhesive be 25 to 40 Pa.s, and utilizing the pressure-sensitive adhesive to coat a substrate to form a pressure-sensitive adhesive layer;

spreading inorganic particles on the pressure-sensitive adhesive layer and then utilizing a pressure roller to perform the roller coating, and removing the excess inorganic particles by one method selected from the group consisting of a gravity method, a vacuum method, and a sweeping and brushing method or by a combination of a plurality of methods selected from the group, so as to form an inorganic particle layer;

using a polyacrylic acid copolymer emulsion to coat a surface of the inorganic particle layer and drying the obtained product at a temperature of 60 to 80 °C for 1 to 2 minutes to provide a polymer layer;

in which the polyacrylic acid copolymer emulsion comprises, in parts by weight, components of:

10 to 50 parts of water, 0 to 60 parts of a solubilizer, 0 to 5 parts of a dispersant, 0 to 5 parts of a wetting agent, 5 to 50 parts of an acrylic emulsion, 0 to 5 parts of a film-forming additive, 0 to 5 parts of a preservative, 0 to 5 parts of a silane coupling agent, 0 to 1.0 part of an ultraviolet absorbent, 5 to 70 parts of a pigment, 0 to 5 parts of an antimildew agent, 0 to 2 parts of a defoamer, and 0 to 5 parts of a leveling agent.

14. A macro-molecular self-adhesive film waterproof coiled material comprising a substrate and an organic-inorganic composite waterproof coating, the organic-inorganic composite waterproof coating comprises a pressure-sensitive adhesive layer composed of a pressure-sensitive adhesive, an inorganic particle layer composed of inorganic particles, and a polymer layer, in which the three layers are formed on the substrate sequentially from a bottom to a surface,

in which the polymer layer is formed by solidifying a polyacrylic acid copolymer emulsion comprising, in parts by weight, components of:

19 to 26 parts of water, 0.5 to 5 parts of a solubilizer, 0.1 to 0.5 part of a dispersant, 0.1 to 0.5 part of a wetting agent, 28 to 30 parts of a acrylic emulsion, 0.1 to 1 part of a film-forming additive, 0.2 to 0.3 part of a preservative, 0.5 to 0.6 part of a silane coupling agent, 0.5 to 0.6 part of an ultraviolet absorbent, 40 to 45 parts of a pigment, 0.1 to 0.5 part of an antimildew agent, 0.1 to 0.2 part of a defoamer, and 0.1 to 0.8 part of a leveling agent,

in which the organic-inorganic composite waterproof coating, comprising steps of:

heating a pressure-sensitive adhesive at 75 to 90 ℃ to make a viscosity of the pressure-sensitive adhesive be 25 to 40 Pa.s, and utilizing the pressure-sensitive adhesive to coat a substrate to form a pressure-sensitive adhesive layer;

spreading inorganic particles on the pressure-sensitive adhesive layer and then utilizing a pressure roller to perform the roller coating, and removing the excess inorganic particles by one method selected from the group consisting of a gravity method, a vacuum method, and a sweeping and brushing method or by a combination of a plurality of methods selected from the group, so as to form an inorganic particle layer;

using the polyacrylic acid copolymer emulsion to coat a surface of the inorganic particle layer and drying the obtained product at a temperature of 60 to 80 ℃ for 1 to 2 minutes to provide the polymer layer.