METHOD FOR MAKING ARTIFICIAL STONE

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ABSTRACT

A method of making decorative individual stones that are indistinguishable in appearance from stones found in nature. According to the invention, the artificial stones are made from random sized pieces within the desired size range of gypsum or cement board. The selected pieces are then dipped into a mixture of the desired composition which may include a liquid binder, sand, cement and coloring after which the pieces are formed to the final shape resembling stone.

11 Claims, No Drawings
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METHOD FOR MAKING ARTIFICIAL STONE

BACKGROUND OF THE INVENTION

In the last ten or twenty years, there have been a variety of new building materials which have been marketed and which provide the consumer with a wide selection of both decorative and functional materials from which the consumer can choose to achieve the desired result. A number of these decorative materials have been developed as the result of the development of numerous plastic materials. However, the plastic materials, although generally low in cost, lack a certain degree of authenticity when used as substitutes for materials found in nature. Also, some plastic materials, although fire retardant, present a hazard because of toxic fumes that are given off when the materials are burned. Where a builder or decorator wishes to create the appearance of stone, for example, he can now select from some of the plastic materials and also from a variety of materials which closely resemble real stone but which are molded from a standard mold. The latter materials therefore lack realism because they are too “perfect” since they are made from a standard mold and thus give too uniform an appearance. Thus, if a builder wishes to create a wall, hearth, fireplace, etc. which has the appearance of true stone, he must in most cases use the real thing. Since real stone is quite heavy, this can in some instances create structural problems particularly if an existing structure is being remodeled or redecorated. There is, therefore, a need for a stone which is indistinguishable from the real thing, but which is light in weight, fireproof, and also relatively low in cost.

BRIEF SUMMARY OF THE INVENTION

The method of the invention commences with taking random sized pieces of fireproof material such as gypsum or cement board which is a relatively thin material that can be broken into pieces of the desired approximate size. A mixture is then prepared of a liquid or semi-liquid binder, sand, Portland cement, a lightweight aggregate and water. This mixture is prepared in proportions so that the mixture is a thin, sticky substance into which each of the pieces of material are dipped. The pieces are then formed to the desired shape and allowed to dry. Color can also be added to the mixture to vary the color and appearance of the final artificial stones.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

The principles of the invention can be practiced using two somewhat similar techniques, each of which employs the same basic materials and basic steps. The first of these methods is a dipping process. When this process is used, the first step is to produce random sized pieces of material in the approximate desired size range of the finished stones. This material can either be gypsum board or cement board. The former is commonly marketed under the trademark “Sheetrock” and the latter is commonly marketed under the trademark “Cemesto” or “Transite”. As is well known to those skilled in the art, either of these products comes in sheets of varying thickness. For the purpose of the method of the invention, scraped material can be used since it will be broken into random sized pieces. Hereafter, the material used for these random sized pieces will be merely referred to as the “base material”.

A mixture is prepared for application to the pieces of base material. This mixture has several basic ingredients: Portland cement, a liquid or semi-liquid binder or adhesive, water and a gypsum type aggregate. Also, sand can be added to the mixture if desired and also a coloring agent or material which preferably is in a powdered form and is selected from one of the earth colors.

The semi-liquid binder or adhesive is preferably a liquid latex binder that when dry forms a strong, hard and solid bond. It should also be soluble in water. One such suitable binder is presently sold under the trademark “Polyco” by Borden and Company. This particular binder is a homopolymer emulsion containing polyvinyl acetate and makes a mixture of thin cement many times stronger than such a mixture would be without the binder.

The gypsum type aggregate is preferably a material which will add volume to the mixture without adding much weight. It therefore is a low density material and is preferably a fine aggregate resembling sand. One such material that is commercially available is sold under the trademark “Vermiculite” and is commonly known in the trade as “pearl lag”.

This mixture of water, gypsum aggregate, binder, sand, Portland cement, and a coloring material is mixed to a consistency that depends upon the desired thickness of the finished product. Thus, the thicker the mixture, the thicker the finished product. It may also be desirable to make up two mixtures, one a thinner mixture and the pieces allowed to dry slightly, but before completely dry, each piece is dipped a second time into the thicker mixture. The pieces can either be then dried or first formed to a desired shape and then allowed to dry. Depending upon the finished product desired, it may also be desirable to add an accent color to the wet dipped pieces by preparing a dry mixture of a powdered color and Portland cement.

It may be advantageous to make the artificial stones by a slightly different process but using the same base material and mixture as described above. In this process, the mixture is prepared to a thicker consistency and is troweled onto the base material and broken up into random sized pieces. If this process is used, preferably the base material is cement board rather than gypsum board. After the mixture is troweled onto the base material and allowed to dry, it is broken into random sized pieces and the edges are ground off to bevel the edges. The resulting artificial stones are basically the same as those produced in the first described method.

Stones produced by either of the methods described herein using the base materials and mixture disclosed herein so closely resemble real stone that it is almost impossible for the layman to distinguish the manufactured stones of the invention from the real thing. Since the artificial stones produced according to the invention are relatively light in weight, they can be used in numerous decorative applications where real stone cannot be used because of structural limitations. The stones of the invention can be used in fireplaces, walls both interior and exterior, and any other uses where real stone is used for decorative purposes. The stones of the invention are fireproof and erosion proof and thus will comply with all building codes. Although I have described my invention in connection with the
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preferred embodiments thereof, it will be obvious to those skilled in the art that various revisions and modifications can be made in those embodiments without departing from the spirit and scope of the invention. It is my intention, however, that all such revisions, modifications and variations which are obvious to those skilled in the art will be included within the scope of the following claims.

I claim:

1. A method for making artificial stone using pieces of gypsum or cement board, said method comprising: breaking said board into random sized pieces within a size-range of approximately the desired size of the finished stones; applying to each of said pieces a semi-liquid mixture of cement, a binder, water and a low density fine aggregate; and allowing said mixture to dry to form the stones.

2. The method for making artificial stone of claim 1 in which said mixture includes sand and coloring agent of the desired color of the finished stone.

3. The method for making artificial stone of claim 2 in which said mixture is prepared in two consistencies, a thin consistency and a thicker consistency, and said mixture is applied in two steps, the thinner mixture being applied by dipping the pieces into the thinner mixture, and the thicker mixture being applied by dipping the pieces into the thicker mixture after the thinner mixture has been allowed to dry slightly.

4. The method for making artificial stone of claim 3 in which after dipping into the two mixtures each piece is formed to the desired shape prior to allowing the mixtures to dry.

5. The method for making artificial stone of claim 4 in which an accent color is added to each piece after forming to the desired shape, but before allowing the mixtures to dry.

6. The method for making artificial stone of claim 5 in which the binder in said mixture is a liquid latex binder soluble in water, and the low density aggregate in said mixture is pearl lag.

7. The method for making artificial stone using pieces of gypsum or cement board, said method comprising: preparing a mixture of cement, a binder, water and a low density fine aggregate which mixture is of a relatively thick consistency; applying said mixture to large pieces of said board; allowing the mixture to dry on said board; breaking the board containing the applied mixture into random sized pieces; and beveling the edges of said random sized pieces so that said pieces resemble nature stone.

8. The method for making artificial stone of claim 7 in which said mixture also includes sand and a coloring agent of the desired color.

9. The method for making artificial stone of claim 8 in which the binder in said mixture is a liquid latex binder, and the aggregate in said mixture is pearl lag.

10. An artificial stone resembling natural stone and comprising: a random sized piece of flat, relatively thin base material having a core of gypsum or cement covered on two sides by thin layers of paper or the like that maintain said core in a solid mass, and a hardened exterior material completely covering and enclosing said base material in an irregular configuration, said exterior material including cement, a binder and a low density aggregate.

11. The artificial stone of claim 10 in which the binder is a latex binder, said aggregate is pearl lag, and said exterior material includes sand and a coloring agent.