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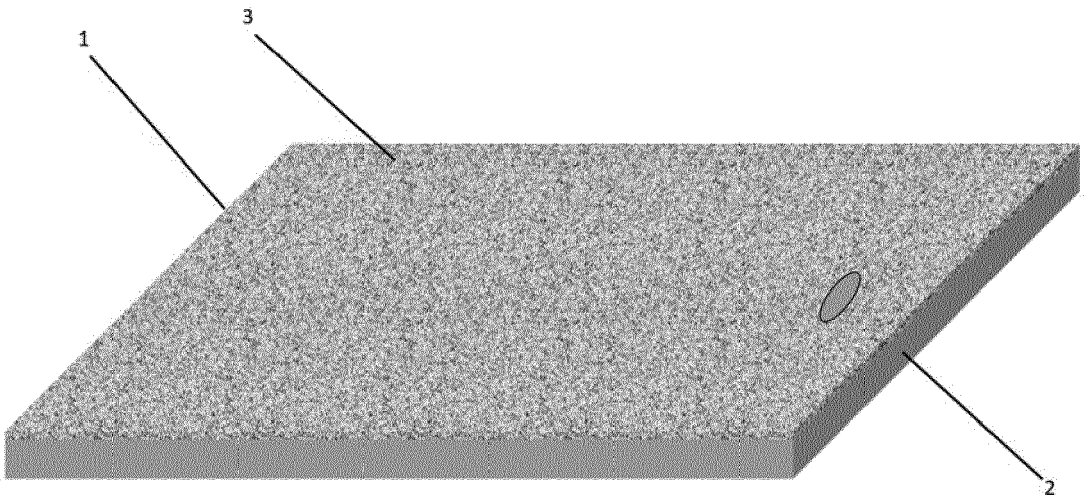
(54) **SHOWER TRAY**

(57) The invention relates to a shower tray comprising at least one first surface and/or external layer, and at least one second internal layer, wherein the first layer is comprised of a composite configured by at least one base material and at least one photoluminescent material, and the second layer is comprised of at least one base material.

Figure 1



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Description

TECHNICAL FIELD

[0001] The present invention belongs to the field of domestic construction elements, more specifically sanitary construction elements, and more specifically to shower trays and bathtubs comprising special properties through the application of surface treatments.

BACKGROUND OF THE INVENTION

[0002] Currently, shower trays and bathtubs are widely known, configured as a slab made of different materials, such as ceramics, acrylics or natural stone; and which are installed on the floor of the bathroom of a home or similar, acting as insulation against possible water leaks, redirecting it to the drain, such that the water is prevented from reaching unwanted areas or surfaces.

[0003] To facilitate the user's cleaning and sanitising tasks, showers or bathtubs often incorporate artificial illumination systems that guarantee correct visibility and enable the user to perform the aforementioned tasks without any problem.

[0004] To achieve this goal, shower trays or bathtubs can be found which incorporate artificial light-emitting elements therein, or on the perimeter thereof, with different features or properties, so that the aforementioned adequate visibility is achieved.

[0005] Moreover, photoluminescent materials or composites are also widely known, which are those characterised in that they emit light radiation after being subjected to external stimulation.

[0006] In other words, photoluminescent materials or composites emit visible light after being exposed to ultraviolet (UV) radiation, which excites the atoms of said materials or composites, storing energy that they subsequently release in situations of absence of light for a certain time, until the atoms return to the initial state thereof.

[0007] Materials or composites of this type can be manufactured in different ways, such as using photoluminescent additives to different base materials, forming a wide variety of products, which come to have photoluminescent properties that improve their properties.

[0008] However, photoluminescent materials of this type usually have several problems, such as uneven distribution in the base material, which causes unevenness in light emission, obtaining illuminated areas and other less illuminated areas or areas totally lacking illumination.

[0009] Additionally, these methods of applying fillers with photoluminescent materials on base materials increase the manufacturing costs of the final composite, which would cause an increase in the final market price and/or a decrease in profitability on the part of the manufacturer.

[0010] Considering the existing art, numerous documents that seek the photoluminescence of different pavements or surfaces can be found.

[0011] For example, patent document ES1152435 can be found in the state of the art, which describes a compacted rubber granule flooring, which is made up of tiles to pave spaces of all kinds, which is configured from one or more base components, comprising compacted rubber granules and binding elements or products, and which is characterised in that it incorporates an additional component with photoluminescent properties.

[0012] Patent document ES1154134 can also be found, wherein a mass for joints between parts of different materials is described, configured from a base of variable composition, and which incorporates a photoluminescent component.

[0013] Patent document ES1262810 also belongs to the state of the art, wherein a luminescent construction material is described, which is formed from a mass made up of a mixture of components, which includes a proportion of photoluminescent pigments, and additionally incorporates an internal dendritic structure made of transparent material with an indeterminate shape that runs through the entire mass of the material, so that it acts as micro-skeleton conduits for both light and luminescence.

[0014] As can be seen, there are already numerous documents in the state of the art related to composites that incorporate a photoluminescent material, but that do not achieve an even finish, such that the light emitted after absorption is not balanced over the entire surface.

[0015] For this reason, an advantageous technical solution over the state of the art must be implemented, which provides an even luminescent effect over the entire surface of a shower tray or bathtub, without causing an increase in the manufacturing cost, and preventing the increase in the final price of the product or the decrease in profitability for the manufacturer.

DESCRIPTION OF THE INVENTION

[0016] The shower tray proposed by the invention is therefore configured as a notable novelty within its field of application, since as it is implemented and with limitation, the aforementioned objectives are satisfactorily achieved, the characterising details that make it possible and distinguish it being conveniently included in the final claims accompanying this description.

[0017] Specifically, the present invention describes a shower tray with photoluminescent properties that provides a luminescent effect that is evenly distributed over the visible surface of the tray, without diminishing the commercial profitability thereof, and without increasing the final sale price for the consumer.

[0018] To achieve this, the present invention proposes a shower tray comprising at least two differentiated layers. A first external and surface layer comprising at least one base material and at least one material with photoluminescent properties. And a second internal layer that will form the rest of the thickness of the shower tray, using only the base material, without including any photoluminescent component.

[0019] This differentiation is due to the unique need for luminescence to occur on the visible or external face of the shower tray, without having to achieve this effect in the rest of the areas thereof, since its luminescence could not be seen by the user, and therefore it would only affect the final cost of manufacturing the product.

[0020] In particular, the external or surface layer, which comprises the photoluminescent material, will have a thickness of between 0.1 mm and 3 mm which, taking into account that the thickness of a conventional shower tray is commonly comprised between 15 mm and 30 mm, means between 0.6% and 10% of the total thickness of the shower tray.

[0021] To achieve a uniform surface distribution of the photoluminescent material in the first layer of the shower tray, the base material and the photoluminescent material will be ground prior to the moulding of both components. This will achieve a homogeneous distribution of the photoluminescent material in the composite and, therefore, a considerable improvement in the quality of the finishes and the light effectiveness of the shower tray object of the present invention.

[0022] Preferably, the operation of grinding and dispersing the photoluminescent material and the base material will be performed in a three roll mill, which is capable of providing a micrometric finish for the particles, and therefore a homogeneous dispersion. Fundamental objective of the shower tray object of the present invention.

[0023] The composite with which the surface layer is made will comprise between 5% and 50% of photoluminescent material, which will be added to the particles of the base material, which will form the remaining percentage of the composition, that is, between 95% and 50% respectively.

[0024] Preferably, the base material will be an acrylic material and/or a gelcoat and/or a material made up of mineral components and synthetic resins.

[0025] The shower tray and the set of elements described represent an innovation with structural and constituent features heretofore unknown for its intended purpose, reasons which, taken together with its usefulness, provide it with sufficient grounds for obtaining the requested exclusivity privilege.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] To complement the description provided herein, and for the purpose of helping to make the features of the invention more readily understandable, said description is accompanied by a set of drawings constituting an integral part of the same, which by way of illustration and not limitation represents the following:

Figure 1 shows a general view of the shower tray
Figure 2 shows a cross-section of the shower tray

[0027] List of references and figures:

1. First layer
2. Second layer
3. Luminescent surface

PREFERRED EMBODIMENT OF THE INVENTION

[0028] In the following detailed description of the preferred embodiments, reference is made to the accompanying drawings which form a part of this specification and in which specific preferred embodiments are shown by way of illustration in which the invention may be carried out. These embodiments are described in sufficient detail to enable those skilled in the art to carry out the invention, and it is understood that other embodiments may be used and logical structural, mechanical, electrical, and/or chemical changes may be performed without departing from the scope of the invention. To avoid details that are not required to enable those skilled in the art to carry out the detailed description, it should therefore not be taken in a limiting sense.

[0029] Specifically, the present invention proposes a shower tray comprising at least one first layer 1, which will be a surface and/or external layer, and at least one second internal layer 2, wherein the first layer 1 is comprised of a composite configured from at least one base material and at least one photoluminescent material; and wherein the second layer is solely comprised of base material.

[0030] Thus, the shower tray object of the present invention will comprise two different layers: a first layer, which will be the one on the visible face and which will have luminescent effects, due to the addition of photoluminescent material; and a second layer, which will only have a structural function, since it does not comprise photoluminescent material in the composition thereof.

[0031] In a preferred embodiment, the first base 1 will be between 0.6% and 10% of the full thickness of the shower tray, such that this first layer 1 will be thinner than the second layer 2, with the aim of minimising the economic impact in manufacturing, having to use photoluminescent material in the minimum required proportion that guarantees correct light emission on the visible face of the shower tray, without having to apply it to the entire set.

[0032] In a preferred embodiment, the composite of the first layer 1 comprises between 5% and 50% of photoluminescent material.

[0033] Preferably, the mixture of the photoluminescent material and the base material will be performed by a previous grinding thereof, which guarantees the smallest size of material particles, facilitating the homogeneous distribution of the photoluminescent material in the base material. And preferably, this grinding will be performed in a three roll mill.

[0034] These last embodiments refer to the decrease in the particle size of the materials, making them micrometric in size in the case of a three roll mill, which maximises the homogenisation of the mixture. This is due to

the fact that large particle sizes favour the segregation thereof, achieving heterogeneous distributions, which would not achieve the effect pursued by the shower tray object of the present invention. According to the preceding embodiments, a shower tray made up of two layers is achieved:

- a first layer 1 of smaller size, which will comprise a homogeneous mixture, due to the previous grinding, of photoluminescent material and base material, which will emit light evenly over the entire visible surface 3 of the shower tray;

- a second layer 2 of larger size, which will be made up of base material and which will only have structural functions.

[0035] Having sufficiently described the nature of the present invention, as well as the ways of implementing it, it is not considered necessary to extend its description for any person skilled in the state of the art to understand its scope and the advantages which derive from it, specifying that, within its essential nature, it can be carried out in other embodiments that differ in detail from the one provided by way of example, and which are also covered by the requested protection, provided that they do not alter, change or modify its fundamental principle.

Claims

1. **A shower tray characterised in that** it comprises at least one first surface and/or external layer (1), and at least one second internal layer (2), wherein:

    ◦ the first layer (1) is comprised of a composite material configured by at least one base material and at least one photoluminescent material;
    ◦ the second layer (2) is comprised of at least one base material.

2. **The shower tray** according to claim 1, **characterised in that** the first base (1) comprises between 0.6% and 10% of the full thickness of the shower tray.

3. **The shower tray** according to any of the preceding claims, **characterised in that** the photoluminescent material comprises between 5% and 50% of the base material and photoluminescent material composite of the first layer (1)

4. **The shower tray** according to claim 1, **characterised in that** the base material and photoluminescent material composite of the first layer (1) is configured from a grinding process.

5. **The shower tray** according to the preceding claim, **characterised in that** the grinding process is performed in a three roll mill.

Figure 1

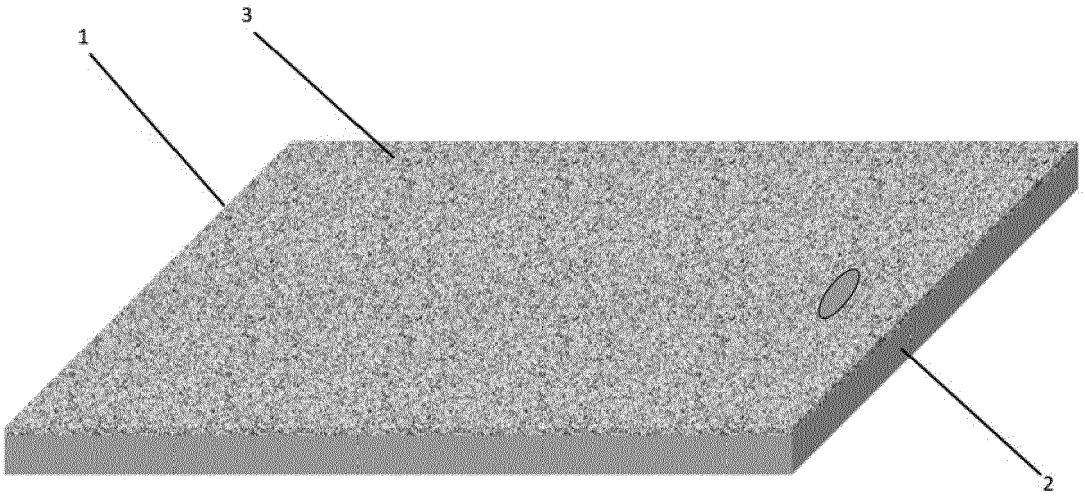
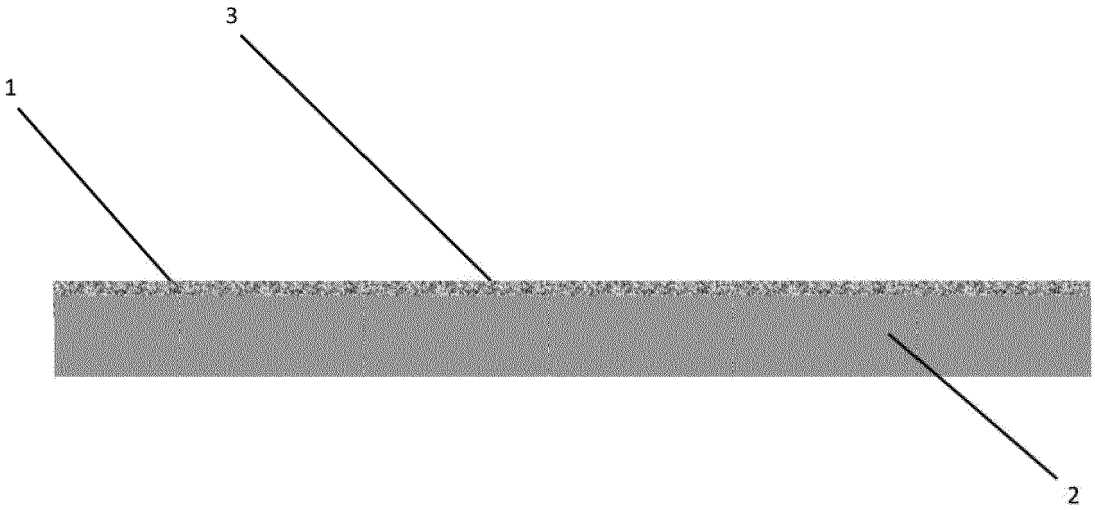


Figure 2



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EUROPEAN SEARCH REPORT

Application Number
EP 22 38 2340

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2011/135318 A1 (POLYFORMERS LTD; HUTCHON BRUCE [GB]) 3 November 2011 (2011-11-03) * page 9 - page 10; figures 1-7 *	1,2,4,5	INV. A47K3/40
Y		3	
Y	US 6 207 077 B1 (BURNELL J P; BURNELL JONES P; BURNELL-JONES P) 27 March 2001 (2001-03-27) * column 6 - column 12 *	3	
A,D	ES 1 262 810 U (DEL MORAL GUMA ROSA MARIA) 16 March 2021 (2021-03-16) * the whole document *	1-5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	24 August 2022	Oliveras, Mariana

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 22 38 2340

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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24-08-2022

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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- ES 1154134 **[0012]**
- ES 1262810 **[0013]**