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(54) A method of coating a surface of an object

(57) A method of using compositions and kits for preparing a marbleized coating on the surface of a sheet or object involves floating multiple colour coating materials on the surface of water and dipping the sheet or object directly into this two phase liquid system. The colour coating forms its own design on the water surface and does not need to be moved around or it can be changed. The resulting sheet or object is coated with a marbleized coating which is flexible and permanent. The water is conditioned with cream of tartar or a similar non-toxic substance and tested prior to carrying out the coating method.

EP 0 815 951 A1

Description

The present invention is directed to decorating articles and especially to methods for coating surfaces of articles with a multicoloured pattern, and more particularly is directed to an improvement of US-A-5 340 766.

Coating the surface of solid materials may be conventionally performed by dipping the solid material into a liquid coating composition. This technique has been enhanced by floating the coating material on another liquid. As the coating material floats on the surface of the other liquid, a layer may be formed which will then coat as a more uniform thin layer on the object being coated. This technique has been applied to both sheet material as well as three dimensional objects.

US-A-846 774 gives a very old example demonstrating the concept of floating a thick layer of paint on water and then dipping a sheet or other object in the liquid to apply a thin film of paint as a permanent coating on the articles being treated. Also see US-A-304 802 and 2 087 504.

In more recent years, a number of variations on this method have been used with numerous devices for continuously coating objects. Several different additives to one or more reagents have been proposed. US-A-1 931 667, discloses marbleizing the surfaces of objects by dipping the object into a water bath with a multiple oil colour paint surface layer floating thereon. The colours in the oil paint may be applied in any design, preferably one with irregular patterns resembling marble. To keep the paints from flowing and to fix the design to the dipped object, US-A-1 931 667 proposes the addition of alum to a soapy water solution to form a scum which will bind the colours and fix them in a particular orientation. The colour layers may then be cut in any shape and oriented as desired.

Various materials have been added to the floating paint surface to impart special visual effects. Other liquids have also been added to the floating paint layer to improve its uniformity and adhesion to the article being coated. For example, US-A-2 981 632 adds naphtha and other thinners to spread the floating oil colours on a water surface. Multiple paints or colours are used and materials may be added to impart different types of finishes.

Other surface effects have been provided to coating material. For example N,N-diethyl-meta-toluamide has been proposed to enhance the globule forming effect in US-A-4 490 413.

Dip coating methods have also employed soft water and a number of thinners such as turpentine, naphtha, etc. to form thin films of oil dyes on the surface of the water. One such example is given in US-A-4 091 126. The object resulting after coating has a marbleized surface on a solid article.

To thin paint, a large number of hydrophobic solvents have been proposed. An example is given in US-A-1 343 387, using terpineol and kerosene. Other examples are given in US-A-3 245 821, using kerosene and naphtha among other materials, and US-A-2 320 527, using turpentine, mineral spirits, naphtha and other non-polar organic solvents in paint to cause thinning of the paint.

Previous attempts with paints have found that paints do not spread on water in sufficiently thin layers in a manner which allows them to almost disappear on the surface and when adding new colour will also spread and start to condense the transparent colours and form a design. Furthermore, the aforementioned techniques of the prior art have not been satisfactory for forming a thin paint surface on a coated object. Thus, a variety of attempts have been made to modify the conditions to use floating paint. Thick layers and a non-flowing layer of paint on a pasty support have been proposed. However, these techniques lack the flexibility and require artistic talent to paint a design on the surface before the object is contacted on the surface. Also movement of the design was not readily performed and the paint layer was much thicker.

Lead based paints were used in the past. In recent years, the toxic effects of lead have become of greater concern. However, the physical properties of lead-free paints differ from those of lead-containing paints and as a result the conditions need to be modified. Therefore, the use of lead-free paint would be a desirable product to use. However, a simple method for spreading a very thin mobile layer of paint on a water surface for coating of an object upon directly dipping an object was not achieved with sufficiently thin films of paints until the advent of the invention of US-A-5 348 766, which has served the industry very well and has proven to be highly successful.

In accordance with the invention of US-A-5 348 766, the water on which the paint is floated is first conditioned with borax. However, borax if accidentally eaten can be toxic and therefore desirably is to be avoided if possible, especially in conjunction with products and processes in which children are involved.

In a first aspect the present invention provides a method of coating a surface of an object with a design comprising floating a plurality of different coloured oil-based paints on a surface of water containing a conditioning agent so that the paint spreads in a thin layer over the water surface, dipping an object into the water so that the object contacts the thin layer of floating paint on the conditioned water surface, removing the object from the water, and drying the object to form the design as a coating on a surface of the object, wherein the water is conditioned by adding thereto a water-soluble non-toxic substance having potassium hydrogen tartrate-like physico-chemical properties in respect of said water-conditioning.

In a second aspect the present invention provides a kit for coating a surface of an object comprising at least two containers, each containing a different oil-based paint capable of spreading to a thin film when a drop of said paint is

placed on a surface of water which has been conditioned with said non-toxic substance; a separate container of the said non-toxic substance; and instructions in the form of written instructions, audiotape instructions, videotape instructions or more than one form of said instructions.

In a third aspect the present invention provides a method of coating a surface of an object with a design comprising conditioning a quantity of water by adding the aforementioned non-toxic substance thereto to form a solution, and providing said solution in the form of a bath having an upper surface, floating a first coloured paint on the surface of said solution so that a first drop of paint spreads in a layer over said surface, and floating at least one differently coloured paint on said upper surface of said solution to form at least a second colour layer over said surface.

Preferably the said non-toxic substance is a tartrate or a chemical compound which is structurally related to a tartrate.

It is accordingly an object of the present invention to overcome deficiencies in the prior art, such as those mentioned above.

It is another object of the present invention to impart a marbleized surface coating on an object by floating plural colours of paint on water and then dipping a clean, dry object directly into the water with floating paint to directly transfer the floating paint design to the object.

It is a further object of the present invention to produce a marbleized design which is modifiable and readily controllable once paint has been placed on the surface of water.

It is yet a further object of the present invention to assay for water being properly conditioned with the non-toxic substance so that paint readily spreads on the surface of water, especially an ultra-thin layer of paint which is so thin that it can hardly be seen when floating on the surface of the water.

It is still another object of the present invention to prepare a kit for convenient use of lead-free paints to prepare a marbleized coating on an object, and without the use of potentially toxic borax to condition the water.

It is yet another object of the present invention to provide a mix of appropriate paints and other thinners and solvents so that the paints will spread in an ultra-thin layer on a water surface.

It is still further an object of the present invention to spread paint on a surface of water without applying thickeners such as paste to the water.

It is further another object of the present invention to prepare a marbled design without the need for artistic talent or the hand painting of a marbled design, and can be successfully used by children.

The present invention thus relates to a direct transfer method for coating an object by dipping it into a container of water which has an ultra-thin layer of paint floating on the water surface. It is particularly preferred that the water is preconditioned by adding cream of tartar, i.e. potassium bitartrate, also called potassium acid tartrate or potassium hydrogen tartrate, $C_4H_5KO_6$, so that the paint will spread in an ultra-thin layer over the water surface. Plural coloured paints spread on the surface and actually form their own design if properly placed on the water surface. This design will transfer a mirror-like image to a clean dry surface of an object penetrating the ultra-thin paint film on the water surface. If the design is not satisfactory, by blowing at the edge of the water surface, the paint may be moved and the design will change. The paints can also be moved by using a toothpick to form many intricate designs as if drawing with a brush. When the paint starts to dry, it is time to stop and make the transfer. Paint compositions, kits and assay methods for appropriately conditioned water are also aspects of the invention.

Although the precise mechanism of the conditioning agent which is added to the water to enable the present invention to work is not known, it is speculated that the conditioning agent changes the physical and/or chemical properties of the water at its boundary with the paint film, possibly altering its ionic or polar nature and/or the surface active properties of the water so as to change the water/film boundary. Accordingly any non-toxic substance which has the same effect on the water as cream of tartar, which can readily be identified by routine testing, is within the scope of this invention. However the Applicant does not wish to be held to the above theory of how her invention works.

A preferred embodiment of the invention will now be described:

To begin the process, the water must first be conditioned with the cream of tartar. Water impurities, chlorine, fluorine, pH and the amount of hardness differ with water sources, with harder waters requiring slightly more cream of tartar than soft waters. All water must be tested for conditioning before use, whether cream of tartar is used or any other suitable non-toxic conditioning agent having the same or similar conditioning properties as cream of tartar. After filling a suitable container , e.g. a tray, bucket or fish tank, with room temperature water, about one-half teaspoon to one teaspoon, depending on the water, of cream of tartar is initially added to each one gallon (United States unit) of water (3.785 litres). The solution is stirred until the cream of tartar is dissolved. The cream of tartar solution should be allowed to age for at least about 30 minutes to condition the water. A container deeper and wider than the object being decorated is necessary. Any container that holds water will work. Generally, the container depth should exceed the size of the object being coated or the portion of the object being coated. The container may have an inner liner which is removable for easy cleanup of paint floating to the edge of the water to coat the sides of the container at the water line. The inner liner may be made of waterproof tape or other easily removable and disposable material.

The cream of tartar must be dissolved and the water given ample time, e.g. 30-45 minutes, to condition.

The water solution containing an initial dose of cream of tartar is then ready to be tested for proper conditioning by placing a drop of paint on the water in the centre of the container being used. If the water is sufficiently conditioned, the paint will float and spread on the water and seem to disappear.

Insufficient conditioning of the water will cause the paint to sink or fail to adequately spread. If this result occurs, additional cream of tartar or other conditioning agent which is being used is added and the process repeated until the paint adequately spreads on the surface of the water. Adequate spreading occurs when the paint colour moves, opens up and seems to disappear. If too much cream of tartar or other conditioning agent has been added the design eventually produced may break apart, become grainy or have tiny holes in the paint design.

The conditioned water may be used many times by skimming its surface with an absorbent material to absorb and remove the remaining paint layer. Waste newspaper and the like are well suited for this function.

The objects to be marbleized (except for paper or fabric) are first cleaned. Using a rag with turpentine or mineral spirits is an acceptable means, provided the surface is made free of dust. Porous surfaces, such as wood or bisque, are sealed with paint, shellac, acrylic spray or a sealer primer stain block. Metal objects may also benefit from a coating on the surface, but such coating is not necessary for metal objects. The object may be pre-coated with a semi-gloss enamel paint of any colour. This pretreatment permits one to use less marbling paint. After cleaning, the objects are allowed to dry, if not already dry, to permit the paint to stick to the objects. If there is a residue, water spots or oil from fingers, the paint will not adhere to that area.

The colour of the object can become the background colour in the final product. If the natural surface is desired as a background, the object may be coated with a clear shellac or similar clear material. The choice of objects to be coated is almost limitless provided that they are clean, dry and sufficiently non-porous. Glass, wood, metal, fabric, paper, ceramics, plastic, wax and rubber are among the numerous solid objects which may be marbleized. Almost anything that can be put into water without dissolving or reacting can be marbleized. The shape of the object being coated is not critical provided that the container is wider and deeper than the object.

In order to make a design, one must use a minimum of two colours. When properly placed and enough opposite colours are used, a design will form. The floating wet paint film is fluid and may also be moved around to form another design, if desired. The first drop of paint applied to the water surface will form the background colour for the design, provided that it covers most of the water surface. As each new colour is added, the actions of one colour push against another colour forcing the colours to condense and form a marbled design. Drops of paint may be added by free falling drops close to the water surface or by touching a paint coated applicator to the surface of the water. When the first drop of paint is added to the centre of the water surface, the paint will spread so thin that the drop appears to disappear leaving an ultra-thin film on the water.

Additional drops of one or more different colours of paint must also be added inside the outer edge of the first colour and will push the first colour of paint away, each colour fighting for space. The second and/or later colours are always added within the last preceding drop of paint that has opened and spread, preferably always placing the drops at 12 o'clock, 4 o'clock and 9 o'clock to balance the action of using opposite colours and to produce a marbleized effect. If too much cream of tartar or other conditioner has been added, the design eventually produced may break apart or become grainy. As more colours of paint are placed on the water, the design will keep building and changing. When a pleasing design is formed, wait until the paint stops moving and it is time to dip an object.

The amount of paint added to the surface depends on the size of the container and the object being dipped in the water. The paints are lead-free, oil based and insoluble in water. The paints do not mix but rather one colour pushes the other colour(s) across the water surface. The wet paint films will float side-by-side on the surface of the water and will not mix together. The more drops of paint added, the more intense the colour becomes. By adding the appropriate amount of thinners or diluents and paint conditioners, the wet paint will readily spread over the water surface. The diluent or thinners, if used, should be added to the paints and never to the water.

The process may be repeated by dropping or lightly touching the water with wet paint into areas of a different colour while the paint is still active. Each time a drop of wet paint is added, the added paint will form a film which will push the existing wet colour film aside. The placement of the drops of paint is not critical for functionality but is important to forming the desired design. The total amount of paint will vary with the amount of surface area to be covered. As an example, about 15-30 drops of paint are needed to cover the surface of water in a typical three to five gallon (U.S. gallon) (11.355 to 18.925 litres) bucket having a diameter of about one foot (0.305m), i.e. having a surface area of about 100 to about 150 square inches (64,516 mm^2 to 96,774mm^2). While the exact thickness of the floating paint film has not been measured, it is very thin, much thinner than that used previously by some other coating techniques.

Enough paint must be added to form a design. The placement of the drops is important for the proper formation of a design. The first wet paint in the form of one or a few drops is placed in the centre of the container. Subsequent drops of wet paint of one or more other colours are generally placed within the edges of the first wet paint colour film and will open up to form a design.

In more detail, the thin film of paint colours floating as a pattern on the conditioned water is preferably carried out by placing one or more drops of a first colour at the centre of the container, at which time this first colour will spread and

practically disappear, forming an ultra-thin film on the surface of the conditioned water. A second colour is then placed in three or four different areas inside the first colour but at the outside edge, such as at the twelve o'clock, four o'clock and nine o'clock positions, and these drops of the second (or second, third and fourth) colours will open up and push the first colour film back toward the centre of the container and thus form a marbling design or pattern. Then, another drop of the first colour can then be placed inside the area where the second (or third or fourth) colour opened, and this will force the second (or third or fourth) colour to move towards the centre of the bucket and intensify. Approximately twenty drops of paint colours are sufficient for a twelve inch (304.8mm) circumference container, and this will form a highly satisfactory design or pattern which need not be moved or stirred.

Thus, there are two ways designs are formed. When properly placed on the water and enough paint is used, they create their own design. If the design is not satisfactory, it can be changed by carefully drawing a tooth pick or similar object through the wet paint films moving one or more of them gently, and the design keeps taking new shapes. This must be done before the paint starts to dry.

If so desired the pattern may be altered after it has been initially formed. Shapes may be moved around on the surface of the water for example using one or more toothpicks or similar objects or gently blowing Paint from the edge of the container and the design can be completely changed. Any design pleasing to the user may be made and then directly transferred to an object.

Depending on the temperature and humidity conditions, a variable amount of time will be allowed to pass to partially dry the paint films on the water surface. Under hot dry conditions the paint may dry in a matter of minutes. Under cooler humid conditions, the paint may need to set several minutes before commencing dipping. Once the paint has started to dry, it will adhere to almost any surface. Partial drying causes the paint to become less fluid which alters the way of making a design. The water helps to set the paint as soon as it transfers from the water to the object.

When an object has been dipped, before it is pulled from the water, a clean area is made on the water surface by blowing on the surface of the water to push away the remaining floating paint films as otherwise the object will pick up the excess paint on the way up and ruin the design.

In the case of a large object in a large container, other objects may be dipped to use up the paints as long as the first object is held beneath the water. Before bringing the object out, the excess paint should be skimmed off with newspaper so the design will not be ruined.

If the paint runs when the object is removed, the paint needs to partially dry longer before dipping an object, the object is not dry or too much cream of tartar has been used for the water conditioning, in which latter case additional unconditioned water should be added to the over-conditioned water. Generally, there is a five to ten minute time period when the paint is adequate for decorating objects by direct transfer.

The same colours may be applied sequentially to multiple objects by sequentially dipping each of these objects into the water. Each time, the pattern will appear lighter and will change on an object being coated. When one wishes to use a different colour pattern, paint may be removed from the surface with waste newspaper or the like to absorb the paint and a new design produced. Fresh paint cannot be added to the water with an old design. As noted above, the water may be reused. After many uses the water should be changed and conditioned again with the cream of tartar or other conditioner. After a lot of use, the paints may slow down, and a very small amount (1/4-1/2 teaspoon) of cream of tartar or other conditioner can be added to activate the paints.

The present invention effectively coats an object by direct transfer. The object is directly lowered from above the surface so that it first contacts the floating paint and then is set by the water carrier below. The paint or water does not need to be swirled or painted on the surface. Significant to this direct transfer technique is that the colours of paint adhere to the object as if it were a magnet, and do not run or peel off.

When the sheet or object is dipped into the solution, the bath transfers the paint from the water surface to the surface of the sheet or object. Any paint film remaining on the water surface may be blown to one side, and the coated object then removed; or if a fish tank with a divider at the water surface is used, the coated object may be passed beneath the divider and removed through the uncoated part of the water surface on the other side of the fish tank. If the sheet or object does not have sufficient rigidity for easy handling, the sheet or object may be attached to or filled with other material, such as a clothing form of plastic or cardboard, to impart sufficient rigidity to the object to facilitate dipping.

An object that is to be only partially decorated can be masked off, e.g. with masking tape which can be removed after the transfer is made. Such a technique can be used with solid objects such as the soles of shoes or sneakers. Clothing can be decorated with other fabric that has been dipped and allowed to dry and either sewn or pressed on with a special press-on product. To decorate a small area of a T- shirt, the selected portion of the T-shirt can be placed in an embroidery hoop and masking tape is put around the edge of the hoop to protect the rest of the material from the paint. The design is transferred by placing flat on the water instead of dipping.

If the particular design is not to the liking of the user, the object may be allowed to dry and another colour combination and design may be transferred over the first design. The combination may create a very interesting layered effect. Before the paint is dry, it may be removed with any conventional paint solvent and then another coating applied,

except on fabric, paper and other material which will have absorbed the paint.

If so desired, either the paint or the freshly painted object may attach one or more small articles to the object by contacting the wet paint. Such small articles would then become part of the coating and impart a decorative effect. Examples of small articles include glitter, powders, beads, flakes and fibres. The object should be allowed to air dry.

A kit may be formed by including at least two containers of paint. Each container contains only one colour paint. The kit may also include cream of tartar, written and/or audio and/or video tape instructions, applicators for moving paint on the water surface and/or objects to be coated.

The paints used in the kit, including thinners or diluents, were prepared according to the formulae given in the Table below.

The amount of each ingredient is important to the proper functioning of the paint. Variations of as little as a few percent can adversely affect the ability of the paint to spread and flow, its smoothness, the drying time and how well it sticks to the article being dipped. In general, the flash point of the diluted paints is between 112°F and 117°F (44°C to 47.2°C).

The components vary slightly from batch to batch and with different manufacturers. Each batch must be individually tested for spreading on the conditioned water surface, preferably against another paint composition which does spread. Variations on the above compositions may be needed and should be employed when the paint does not spread on conditioned water.

TABLE 1

PAINT FORMULAE UNITS ARE FLUID OUNCES			
COLOUR	PAINT BASE	PETROLEUM DISTILLATES	ALIPHATIC HYDROCARBONS
WHITE	128	12	44
BLACK	128	0	24
YELLOW	128	32	18
PURPLE	128	24	8
TEAL	128	32	24
ROSE	128	24	8
BLUE	128	32	18
PEACH	128	24	24
BROWN	128	24	24
RED	128	24	32
GREEN	128	24	24
DARK BLUE	128	16	12
AQUA	128	24	32
BURGUNDY	128	32	24
ANTIQUE BLUE	128	16	18
PLUM	128	30	20
WINE	128	24	12
EVERGREEN	128	24	20
VICTORIAN LACE	128	16	48
HEATHER GREY	128	20	16
PUMPKIN	128	20	20

TABLE 2

CONVERSION OF TABLE 1 INTO S.I. UNITS UNITS ARE ML			
COLOUR	PAINT BASE	PETROLEUM DISTIL-LATES	ALIPHATIC HYDRO-CARBONS
WHITE	3636.9	341.0	1250.2
BLACK	3636.9	0	681.9
YELLOW	3636.9	909.2	511.4
PURPLE	3636.9	681.9	227.3
TEAL	3636.9	908.2	681.9
ROSE	3636.9	681.9	227.3
BLUE	3636.9	909.2	511.4
PEACH	3636.9	681.9	681.9
BROWN	3636.9	681.9	681.9
RED	3636.9	681.9	909.2
GREEN	3636.9	681.9	681.9
DARK BLUE	3636.9	454.6	341.0
AQUA	3636.9	681.9	909.2
BURGUNDY	3636.9	909.2	681.9
ANTIQUE BLUE	3636.9	454.6	511.4
PLUM	3636.9	852.4	568.3
WINE	3636.9	681.9	341.0
EVERGREEN	3636.9	681.9	568.3
VICTORIAN LACE	3636.9	454.6	1363.8
HEATHER GREY	3636.9	568.3	454.6
PUMPKIN	3636.9	568.3	568.3

The composition of the ingredients of each component are as follows:

The Aliphatic Hydrocarbon contains: Naptha (petroleum) Heavy alkylate - 100% CAS# 64741-65-7; Flash point 93°F (33.9°C), 100% volatile, BP 162°C, 400°F, Density 6.3 lbs/gal (USA units - S.I. equivalent: 0.756 kg/l) at 68°F (20°C), vapour pressure 7.8mm Hg at 20°C.

Petroleum Distillate contains: 63% petroleum distillates <6% CAS# 8008-20-6 and >57% CAS# 864742-88-7, flash point 125°F (52°C), 70% volatile, Boiling range 300-500°F (149 to 260°C), Density 7.1 lbs/gal (USA units - S.I. equivalent: 0.852 kg/l) at 75°F (24°C), vapour pressure 1.Omm Hg at 70°F (21.1°C).

Base Paint: Lead-free, high gloss enamel high hiding white alkyd paint, 45% Mineral Spirits CAS# 64742-88-7, 25% Titanium Dioxide CAS# 13463-67-7, Flash point 116°F (46.67°C), boiling point 302-390°F (150°C - 198.9°C), density 9.4 lbs/gal. (USA units - S.I. equivalent: 1.128 kg/l), 56 % volatile, 8.3 lbs/gal. Pigments vary based on the colour. The paints are easily mixed prior to use to provide different shades and colours.

The foregoing description of the specific embodiments reveal the general nature of the invention so that others can, by applying current knowledge, readily modify and/or adapt for various applications such specific embodiments without departing from the generic concept, and, therefore, such adaptations and modifications should and are intended to be

comprehended within the meaning and range of equivalents of the disclosed embodiments. It is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

All references mentioned in this application are incorporated by reference.

Claims

1. A method of coating a surface of an object with a design comprising floating a plurality of different coloured oil-based paints on a surface of water containing a conditioning agent so that the paint spreads in a thin layer over the conditioned water surface, dipping an object into the water so that the object contacts the thin layer of floating paint on the conditioned water surface, removing the object from the water, and drying the object to form the design as a coating on a surface of the object, wherein the water is conditioned by adding thereto a water-soluble non-toxic substance having potassium hydrogen tartrate-like physico-chemical properties in respect of said water-conditioning.

2. A method as claimed in claim 1 wherein said non-toxic substance is a tartrate.

3. A method as claimed in claim 2 wherein said substance is cream of tartar (potassium hydrogen tartrate).

4. A method as claimed in any preceding claim further comprising sealing the surface of the object before it is dipped into the conditioned water.

5. A method as claimed in any preceding claim wherein the oil- based paints are lead-free.

6. A method as claimed in any preceding claim wherein the oil- based paints are applied sequentially to the water surface.

7. A method as claimed in claim 6 wherein, after said paints are applied, the paints are moved over the water surface to form a pattern.

8. A method as claimed in any preceding claim, further comprising contacting the coated object to a second object, before the paint fully dries, and thereby transferring the said coating from said first object to said second object.

9. A method as claimed in any one of claims 1 to 7, further comprising applying a plurality of articles, smaller than said object, to said coated object before the paint dries, said articles being selected from a group consisting of glitter, powder, beads, flakes, fibres and mixtures thereof.

10. A method as claimed in any preceding claim wherein the oil-based paints each comprises a paint base and an aliphatic hydrocarbon.

11. A method as claimed in claim 10 wherein the aliphatic hydrocarbon comprises Naptha (petroleum), Heavy alkylate - 100% CAS # 64741-65-7; Flash point 93°F (33.9°C), 100% volatile, BP 162°C, 400°F, Density 6.3 lbs/gal (USA units - S.I. equivalent: 0.756 kg/l) at 68°F (20°C), vapour pressure 7.8 mm Hg at 20°C.

12. A method as claimed in claim 10 or claim 11 wherein each oil based paint used in the method comprises the paint base together with aliphatic hydrocarbons and petroleum distillates in the following range of ratios by volume: paint base 128/petroleum distillates 0-32/aliphatic hydrocarbons 8-48.

13. A kit for coating a surface of an object comprising at least two containers containing a different oil-based paint capable of spreading to a thin film when a drop of said paint is placed on a surface of water which has been conditioned with a water-soluble non-toxic substance having potassium hydrogen tartrate-like physico-chemical properties in respect of said water conditioning; a separate container of said substance; and instructions in the form of written instructions, audiotape instructions, videotape tape instructions or more than one form of said instructions.

14. A kit as claimed in claim 13 wherein each oil-based paint comprises a paint base and an aliphatic hydrocarbon.

15. A kit as claimed in claim 14 wherein the aliphatic hydrocarbon comprises Naptha (petroleum) Heavy alkylate - 100% CAS #64741-65-7; flash point 93°F (33.9°C), 100% volatile, BP 162°C, 400°F; density 6.3 lbs/gal (USA units - S.I. equivalent: 0.756 kg/l) at 68°F (20°C), vapour pressure 7.8mm Hg at 20°C.

16. A kit as claimed in claim 13 or claim 14 wherein each oil based paint comprises the paint base, aliphatic hydrocarbons and petroleum distillates in the following range of ratios by volume: paint base 128/petroleum distillates 0-32/aliphatic hydrocarbons 8-48.

17. A method of coating a surface of an object with a paint design, comprising

conditioning a quantity of water by adding thereto a water-soluble non-toxic substance having potassium hydrogen tartrate-like physico-chemical properties to form a solution, and providing said solution in the form of a bath having an upper surface,
floating a first coloured paint on the surface of said solution so that a first drop of paint spreads in a layer over said surface,
floating at least one differently coloured paint on said upper surface of said solution to form at least a second colour layer over said surface,
dipping an object into said solution through said paint layers so that the surface of the object contacts the floating paint layers on the solution surface, and
removing the object from the solution and drying the object.

18. A method as claimed in claim 17 wherein the coloured paint is thinned before floating the coloured paint on the surface.

19. A method as claimed in claim 17 or claim 18 wherein the first coloured paint is floated on the surface in a layer sufficiently thin that the first drop appears to disappear.

20. A method as claimed in claim 19 wherein the layer formed by the first drop has an outer peripheral edge and the differently coloured paint is floated on the surface of the solution within the outer peripheral edge.

21. A method as claimed in any one of claims 17 to 19 wherein each coloured paint used in the method comprises a paint base and an aliphatic hydrocarbon.

22. A method as claimed in claim 21 wherein the aliphatic hydrocarbon used in the method comprises Naptha (petroleum), Heavy alkylate - 100% CAS # 64741-65-7; flash point 93°F (33.9°C), 100% volatile, BP 162°C, 400°F; density 6.3 lbs/gal (USA units - S.I. equivalent: 0.756 kg/l) at 68°F (20°C), vapour pressure 7.8 mm Hg at 70°C.

23. A method as claimed in claim 22 wherein each coloured paint used in the method comprises the paint base, along with aliphatic hydrocarbons and petroleum distillates in the following range of ratios by volume: paint base 128/petroleum distillates 0-32/aliphatic hydrocarbons 8-48.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 1620

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,X	US 5 348 766 A (LATHAM ELAINE) 20 September 1994 * the whole document * ---	1,4-10, 13,14, 16-21,23	B05D1/20
X	FR 1 077 410 A (ETABLISSEMENTS CADOT FRERES) 8 November 1954 * the whole document * ---	1	
X	DE 360 076 C (W.STARCK ET AL.) 29 September 1922 * the whole document * ---	1	
X	GB 618 883 A (E.F.G. MC GILL) 1 March 1949 * page 1, line 87 - line 91 * ---	1	
A	GB 276 864 A (H.E. BOWRING GREENE ET AL.) 8 September 1927 * page 3, line 42 - line 45 * -----	9	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B05D
B44F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 October 1997	Brothier, J-A

CATEGORY OF CITED DOCUMENTS

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