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(54) **METHODS OF APPLYING COATING  
COMPOSITIONS**

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(57) **ABSTRACT**

Coating compositions and methods of applying them.

## METHODS OF APPLYING COATING COMPOSITIONS

### CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** This application is a divisional of U.S. application Ser. No. 09/634,515, filed Aug. 8, 2000, which is a continuation of U.S. application Ser. No. 08/942,524, filed Oct. 2, 1997, now U.S. Pat. No. 6,127,471, which is a continuation of U.S. application Ser. No. 08/477,558, filed Jun. 7, 1995, now abandoned. Each of these applications is incorporated by reference in its entirety.

### SUMMARY OF THE INVENTION

**[0002]** This invention addresses the current problems by providing a composition that is easy to apply and remove. The composition is a liquid plastic coating that dries upon application into a thin film. The composition comprises as its principal constituents, water, pigmented dispersion, solvent, opacifiers, and glycol monomers and polymers. The preferred embodiment comprises about 45 to 50% by weight water, about 8 to 15% by weight resin, about 10 to 25% by weight pigmented dispersion, about 15 to 25% by weight opacifier such as titanium dioxide, about 1 to 5% by weight polypropylene glycol and about 3 to 6% by weight solvent such as propylene glycol.

**[0003]** The composition of the present invention provides a uniform, colored film on both flexible and rigid substrates. In its presently preferred use, the composition is applied as a thin film to glass, plastic or similar transparent substrate. It is permitted to air dry to form a film which usually occurs within about 30 seconds to 3 minutes, depending on ambient conditions.

**[0004]** Thin film means a pigment dispersed in semi-opaque or opaque layers. These films can also be used to coat surfaces of all types. For example, the composition may be applied to flat surfaces such as glass or plastic sheets, or irregular surfaces such as rocks. The composition is also resistant to rain by may be removed easily by a wet cloth.

### DETAILED DESCRIPTION

**[0005]** The present invention comprises 6 basic ingredients:

- |                           |                    |
|---------------------------|--------------------|
| (1) Water;                | (4) Opacifier;     |
| (2) Resin;                | (5) Solvent; and   |
| (3) Pigmented dispersion; | (6) Coating agent. |

The resin component comprises about 8 to 15% by weight of the composition. The preferred resin is a low weight acrylic/latex base resin. The preferred resin is WWA-99 from Wonder Works of America in Brooklyn, N.Y.

**[0006]** The pigmented dispersion component comprises about 10 to 25% by weight of the composition. This component is present as a dispersion, and is not added as a dry powder, to aid in miscibility. Additionally, since the pigmented dispersions are added as a dispersion, the pigmented dispersion solvent package must be compatible with the aqueous base package comprising the remainder of the solu-

tion (i.e. water, glycol). The preferred pigmented dispersions are Luconyl or Dispers both of which are dispersions available from BASF.

**[0007]** The preferred opacifier is Titanium Dioxide (CAS #13463-67-7). Its percentage of weight to the composition is dependent upon the pigmented dispersion color desired. The percentage weight for most colors is 15 to 25%. However, red requires about 3% to 5% opacifier and about 15% calcium carbonate (CAS #1317-65-3).

**[0008]** The solvent component comprises about 3 to 6% by weight of the composition. The preferred solvent is propylene glycol (CAS #57-55-6). Propylene glycol aids in the flow characteristics of the solution.

**[0009]** The coating agent comprises about 0.5 to 4% by weight of the composition. Polypropylene glycol (CAS #025322-69-4) is the preferred coating agent that forms a protective coating over the rest of the composition when the composition is applied to a surface.

**[0010]** Water comprises the balance of the composition and preferably about 40 to 50% by weight. Greater water concentrations results in a less viscous liquid, which compromises the application capabilities of the fluid to vertical surfaces. Conversely, lesser water concentrations result in a more viscous liquid, which causes application problems of flow through a sponge applicator. The composition is routinely applied as a thin film, and the water is allowed to evaporate. The resultant coating after evaporation is resistant to rain. The composition is readily miscible with water, and is easily removed from the glass substrate with a hand towel and water or a slightly basic aqueous solution.

**[0011]** The following examples are presented to show the preferred composition. They are not intended to limit the scope or content of the invention or disclosure.

#### EXAMPLE 1

- [0012]** (1) about 46% wt. water  
 (2) about 18% wt. pigmented dispersion  
 (3) about 18% wt. titanium dioxide  
 (4) about 12% wt. resin  
 (5) about 5% wt. propylene glycol  
 (6) about 1% wt. polypropylene glycol

#### EXAMPLE 2

- [0013]** (1) about 43% wt. water  
 (2) about 22% wt. pigmented dispersion  
 (3) about 15% wt. titanium dioxide  
 (4) about 4% wt. resin  
 (5) about 11% wt. propylene glycol  
 (6) about 1% wt. polypropylene glycol

The preferred compositions may be made by simply mixing the ingredients. Preferably, the compositions are made by mixing the components in the order listed. The components of the mixture are blended at ambient temperature by stirring to form a homogenous fluid.

What is claimed is:

1. A method comprising:  
 applying a coating material to a substrate that is subject to outdoor weather;  
 where the coating material (a) comprises pigment, water, and about 8 to 15% wt. of resin, and (b) once dry, is resistant to rain but removable from the substrate using a wet towel.
2. The method of claim 1, where the substrate is glass.
3. The method of claim 1, where the substrate is plastic.

4. The method of claim 1, where the substrate has an irregular surface.

5. The method of claim 1, further comprising:

removing the coating material using a wet towel.

6. The method of claim 1, where the resin is an acrylic/latex resin.

7. The method of claim 1, where the coating material includes about 10 to 25% wt. of pigment.

8. The method of claim 1, where the coating material includes about 40 to 50% wt. of water.

9. The method of claim 1, where the coating material further comprises about 3 to 25% wt. of opacifier.

10. The method of claim 9, where the opacifier is titanium dioxide.

11. The method of claim 1, where the coating material further comprises about 3 to 6% wt. of solvent.

12. The method of claim 11, where the solvent is propylene glycol.

13. The method of claim 1, where the coating material further comprises about 0.5 to 4% wt. of coating agent.

14. The method of claim 13, where the coating agent is polypropylene glycol.

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