Long Lasting Anti-Mildew/Fungal Coating for Roofs, Buildings and Pools

Advantages
- Material cost of only $1.00 to cover a surface area of over 240 square feet
- More durable and effective than previous methods
- Useful over a wider range of surface types and weather conditions
- Photocatalyst easily mixes into most thermoplastic materials

Invention
Methods and apparatus for introducing a photocatalyst into a thermoplastic material, and for coating surfaces with said thermoplastic material.

Background
The growth of mold, mildew, fungus and/or algae on various industrial, household and environmental surfaces presents a serious problem. These substances can damage buildings/structures, requiring more frequent and costly repairs and cleaning. Additionally, many molds and fungi are dangerous to human health, and the cleaning and removal of such hazards are of vital importance. Lastly, these substances, at the least, are unsightly and produce foul odors, diminishing the aesthetic value of a property. Billions of dollars are spent worldwide cleaning surfaces, repairing damage and introducing anti-fouling agents onto the surfaces of buildings each year. One common and promising group of anti-fouling agents are photocatalysts (light activated). These catalysts are typically metal based, and make use of natural light to activate their deodorizing, antibacterial and soil-resisting actions. The ideal implementation of these photocatalysts is introduction onto the surface of external walls, thermoplastic structures, swimming pools and rooftops. Unfortunately, current means of coating are unreliable, limited in their application and often break down quickly when exposed to real world conditions and weathering.

UCF scientists have developed a means of layering a photocatalyst into a thermoplastic (rubber-like) material and then coating surfaces with said material. The coating of a thin thermoplastic layer of photocatalyst (2mg/cm2) allows for strong and long lasting anti-bacterial/anti-fouling activity. Testing has already been done with several rubber-like materials which can easily be coated onto the surface of roofs, buildings and pools. The thermoplastic materials and photocatalysts used are more durable and active than previous methods and materials. This coating provides a surface with improved aesthetic appearance, extended lifetime and protection from growth of algae, fungus, mold and mildew. As little as one pound of this material would cover 243 ft2 at a materials cost of only $1.00!

Application
The invention can be utilized to greatly increase the lifetime of roofs, structures and pools by preventing the growth of algae, fungus, mold and mildew. Cleaning product, paint and building siding manufacturers could utilize this technology to greatly increase the capabilities of their products without significantly increasing the cost of their production.

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Selected References

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