Algae, Fungi, and Bacteria Growth Inhibitor

Photo-catalytic Surface Agent

Invention
Inexpensive and easy to use self-cleaning mixtures that use photoactive agents which can be combined with various coatings including, but not limited to, a cement or polymer binder to prevent the growth of algae, fungi, and bacteria in moist environments. [U.S. Patent 5,518,992; 5,880,067 and 6,455,467B2]

Advantages
• Inhibits the growth of unwanted algae, fungi, mold, and bacteria
• One-time cost
• Non-toxic
• Photoactive
• No algacidal dyes
• Multiple applications

Background
Pools, bathrooms, aquariums, water heaters, and concrete in the vicinity of water are all at risk for an over population of algae and microbial plant growth. Several solutions exist, however, most surfacing agents are either toxic to the environment and to human beings, or require frequent replacement with additional cost.

A UCF researcher at the Florida Solar Energy Center has formulated a self-cleaning mixture using photoactive agents with varying oxides to safely inhibit the growth of algae, fungi, mold, and bacteria. The photoactive agents, titanium dioxide and tungsten dioxide, are used with co-catalysts such as carbon, iron, copper, nickel or noble metals such as palladium, iridium, or osmium. The agents can be combined together and/or each agent can be combined with various coatings such as, but not limited to, a cement or polymer binder. The coatings and agents can be applied and/or painted to surfaces that are exposed to water such as aquariums, swimming pool liners, drinking water tanks, roofs, and most other surfaces exposed to water, moisture, condensation, and humid environments. The mixture can also be applied as a non-toxic algae-retardant marine paint.

Application
• Water, moisture, condensation, and humidity exposed surfaces
• Can be applied to ceramic, fiberglass, plastic, or wood materials
• Used in the lining of swimming pools, water tanks, aquariums, and solar water heaters
• Applied to bathroom tiles, fixtures, sinks, and roofs to prevent bacterial growth
• In marine paints for boats hulls

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Keywords
Photo-catalytic, self-cleaning mixture, algae, fungi, bacteria, environment friendly, growth inhibitor, marine paint, swimming pool, aquariums, disinfectant, non-toxic algaecide, algae-retardant

Also see technology UCF ID # 30263