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Algae Resistant Materials

-Algae growth commonly occurs on materials, such as building materials, and can lead to staining of the material and a decrease in the material's durability. This can be a particular problem in areas with warm, wet climates. In a specific scenario, algae growth on roof shingles results in visible black stains affecting roof aesthetics and a decrease in the roof's service life. Common methods of combating algae growth use costly and hazardous chemical and metallic compounds.

On the other hand, sulfur is an abundant industrial waste. In the U.S. alone, nine million metric tons of elemental sulfur is produced annually from industrial processes, such as oil and gas refining. Finding useful solutions for the abundant supply of sulfur minimizes negative effects on the environment.

A sustainable method is needed to protect materials from algae while also finding a use for an abundant industrial waste.

Researchers at Arizona State University have developed a self-cleaning algae resistant material. This material uses a combination of sulfur and bio-oils to damage algae cell structure and hinder its growth. The material will have increased resistance to water damage and biofouling.

Potential Applications

- Roofing materials
- Waterproofing materials
- Building materials
- Roadways
- Rail Networks
- Bridge Decks
- Airports

Benefits and Advantages

- Use of industrial waste to create value-added product
- Decrease in moisture damage to surfaces (e.g., roofs)
- Increase in lifespan of material (e.g., shingles)
- Reduction in carbon footprint of building materials
- Low-cost, sustainable approach
- Implementation of technology is non-disruptive to manufacturing process of materials

