

TECH OFFER

Functional Paint Additive to Prolong Solar Reflectance of Cooling Paint



KEY INFORMATION

TECHNOLOGY CATEGORY:

Chemicals - Coatings & Paints

Green Building - Heating, Ventilation & Air-conditioning

Sustainability - Sustainable Living

TECHNOLOGY READINESS LEVEL (TRL): **TRL6**

COUNTRY: **SINGAPORE**

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OVERVIEW

With rising global temperatures, the demand for energy-efficient cooling solutions is becoming increasingly urgent, particularly in tropical regions. Conventional cooling solutions such as air-conditioning and mechanical ventilation not only consume large amounts of electricity also emit greenhouse gases, further accelerating climate change.

Solar reflective paints offer a sustainable solution by reducing heat absorption in buildings, thereby lowering indoor temperatures, cutting energy costs, and decreasing carbon footprint. However, their performance declines over time due to dirt accumulation, which reduces effectiveness and shortens the coating's lifespan.

To address this challenge, the technology owner has developed a novel functional additive that significantly improves the dirt pick-up resistance (DPUR) of solar reflective paints. By post-production incorporation into the painting, the additive enhances overall effectiveness and longevity while maintaining essential painting properties such as consistency and opacity. This solution

extending painting's solar reflectance by up to 6 times longer than traditional paintings, significantly reducing building cooling loads and lowering maintenance.

The technology owner is actively seeking collaborations with relevant industrial partners to explore IP licensing opportunities.

TECHNOLOGY FEATURES & SPECIFICATIONS

- **Simple integration:** Functional additive can be seamlessly mixed into commercial solar reflective paints via a post-addition route, without compromising underlying paint integrity and changing existing formulations
- **Preserved paint quality:** Maintained essential paint properties such as consistency and opacity
- **Enhanced durability:** Enhanced DPUR properties and extended solar reflectance performance, without altering fundamental paint properties
- **Scalable solution:** Enabled commercial paint manufacturers to improve paint durability and solar reflectance performance with minimal process changes

POTENTIAL APPLICATIONS

- Interior and exterior wall paints for residential, commercial, and industrial buildings
- Functional coatings in construction, automotive, and infrastructure sectors
- Retrofitting existing buildings for improved energy efficiency
- Integration into green building certification projects
- Potential adaptation for solar panel module coatings

UNIQUE VALUE PROPOSITION

- **Additive-based:** Unlike conventional coating formulations, this technology introduces a functional additive that enhances existing products
- **Enhanced performance:** Provides better DPUR and longer-lasting solar reflectance—up to 6 times more durable than traditional paints
- **Ease of adoption:** Enables manufacturers to upgrade existing solar reflective paints without reformulation