Bio-based Antimicrobial Peptides from Keratin Waste

A safe, circular-economy antimicrobial solution for sustainable coating applications

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RELIANCE

Challenge Addressed

Conventional antimicrobial additives used in coatings often rely on toxic, non-biodegradable or metal-based substances that raise health, environmental and regulatory concerns, while increasing costs and resistance risks.

The Solution

Through enzymatic processing of chicken feather keratin waste, antimicrobial peptides are extracted and formulated into a coating additive that delivers high antimicrobial performance at low concentrations, without relying on toxic or persistent substances.

Key Benefits

Non-toxic and **biodegradable**, safer for humans and ecosystems	**Cost-effective alternative** to silver-based additives
Circular-economy feedstock transforming **low-value waste** into a **high-value bioproduct**	**High antimicrobial** efficacy

Application Areas

- Automotive interior components and decorative surfaces
- Home and industrial appliance coatings (refrigerators, washing machines, kitchen surfaces)
- Consumer electronics (touchscreens, switches, housing)
- Public transport interiors and high-contact surfaces

Validation - TRL 4

Validation of the antimicrobial performance and durability of the coating on automotive parts to optimize the deposition parameters for industrial scale.

Sustainability & Safety

Developed following Safe-by-Design principles, the additive is biodegradable, metal-free and designed to minimize environmental impact and risks associated with conventional antimicrobial agents.