

Factory-Applied Antimicrobial Coatings for Refrigerator Components

Built-in hygiene for home appliances
for easier cleaning and long-lasting
antimicrobial protection



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Challenge Addressed

Refrigerator interiors and high-contact components such as handles and shelves are difficult to keep free from stains and germs accumulation, often requiring frequent cleaning with aggressive products. Consumer-applied coatings provide only temporary protection and may damage surfaces, while manufacturers seek durable, food-safe solutions that can be seamlessly integrated into production lines.

The Solution

Factory-applied antimicrobial coating integrated directly into refrigerator components like door handles and glass shelves during manufacturing. The solution combines antimicrobial protection with hydrophobic and oleophobic surface properties. This dual functionality prevents microbial growth while reducing dirt, oil and food residue accumulation.

Key Benefits

Long-lasting antimicrobial protection on high-contact surfaces, significantly reducing cleaning effort and the need for harsh chemicals.

The built-in nature of the coating differentiates it from aftermarket solutions and supports premium product positioning.

By **protecting the surface itself**, it prevents scratches and wear caused by improper cleaning, extending product lifespan and **improving user experience**.

Application Areas

The coating is applied as part of the production process, ensuring consistent quality, durability and compliance with food-contact safety requirements.

- Initially designed for household refrigerators
- Can be extended to other home appliances such as ovens, microwaves and washing machines
- Professional and industrial refrigeration equipment used in healthcare, catering and laboratories

Validation - TRL 7

Validated through pilot integration on refrigerator glass shelves and door handles, including durability testing, antimicrobial performance and food-contact safety certification, supported by third-party laboratories.

Sustainability & Safety

The coating aligns with Arçelik's commitment to health, hygiene and sustainability. Its durability **reduces the need for repeated cleaning and chemical use**, while compliance with food-contact and antimicrobial standards ensures consumer safety and regulatory trust.