

**TECH OFFER**

**Synbiotics Cleaning Solution**



**KEY INFORMATION**

TECHNOLOGY CATEGORY:

Chemicals - Bio-based

Environment, Clean Air & Water - Sanitisation

Environment, Clean Air & Water - Biological & Chemical  
Treatment

Sustainability - Sustainable Living

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174939**

**OVERVIEW**

This technology is a patented synbiotics (combination of probiotics and prebiotics) cleaning solution that offers a safe and sustainable alternative to traditional cleaning products and disinfectants. When released onto the surface, the probiotics will digest and break down dirt, grime, and other unwanted substances while the prebiotics in the solution act as an additional source of nutrition for the probiotics. The resultant surface microbiome provides a continuous cleaning effect that is longer lasting than traditional cleaning chemicals and disinfectants.

Often, the overuse of traditional chemicals and disinfectants results in antimicrobial resistance (AMR), allergenic reactions to the user, negative impact on the environment and short effective lifespan. With this synbiotics technology, users can overcome these limitations and achieve a long-term effective cleaning system and a natural microflora to the environment. When utilised in

healthcare settings, the synbiotics cleaning solution demonstrated a higher reduction of pathogens (80% more), decreased AMR (up to 99.9%) and health-associated infections (52% lesser).

The technology owner is interested in co-development projects and test-bedding opportunities with companies looking for a sustainable and long-lasting cleaning technology i.e., cleaning equipment and automation manufacturers/suppliers and cleaning service providers.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This technology consists of proprietary dual action deep cleaning probiotics enzymes and specially formulated surfactants which helps to detox surfaces, break down biofilm and dirt components through a continuous cleaning effect and microscopically purifying down to the deepest pores of surfaces.

Main features of this synbiotics cleaning technology include:

- High efficacy and able to target broad spectrum of pathogens
- Long-lasting and continual cleaning efficacy
- Safe and non-toxic
- Decreased AMR (up to 99.9%)
- Reduction in health-associated infections (52%)
- Suitable for water-resistant surfaces

## POTENTIAL APPLICATIONS

This technology can be deployed across several sectors including healthcare, commercial, industrial, and residential buildings on water resistant surfaces (floor and walls). The technology owner has successfully test-bedded the technology in local healthcare institutions.

By varying the probiotics used, this technology may also be used in agriculture, aquaculture, animal husbandry and personal care applications to extend the benefits of probiotics into new products.

## MARKET TRENDS & OPPORTUNITIES

The global healthcare facilities and household cleaner market is estimated to be valued at US\$55 billion in 2022. With the continuous use of chemical disinfectants, multi-resistant bacteria like super bugs and MRSA are expected to raise AMR and account for a rise in AMR-related deaths. This synbiotics cleaning technology can overcome and reduce AMR concerns, maintaining a long-term effective cleaning system and a natural microflora to the environment.

## UNIQUE VALUE PROPOSITION

This technology overcomes limitations in using conventional cleaning products and disinfectants such as:

- Limited effective short lifespan results
- Increasing health risks (acute & chronic) to both the user and consumers
- Requires more manpower & cleaning frequency

- Difficulty in breaking down biofilms, causing recurring odour and dirt

It also provides and maintains a chemical-free, long-term effective cleaning system through the dual action deep cleaning efficiency.

The technology owner is interested in co-development projects and test-bedding opportunities with companies looking for a sustainable and long-lasting cleaning technology i.e., cleaning equipment and automation manufacturers/suppliers and cleaning service providers.