

# Nano Technology

At Exclusive Group we are always looking for new technology that will simplify the cleaning process but also that will deliver a longer lasting protection for our customers. Our aim is to eliminate the risk of pathogenic cross-infection and reduce consequent risk for our colleagues and customers.



## What is Nano Technology?

How can we prevent surfaces from being re-infected once cleaned? The answer is Nano Technology.

Firstly, the ability to repel water and water vapour from surface touchpoints is a major start in building a protective and safe environment.

By applying a thin-film (a microbiota barrier) to a surface we can make bacterial adhesion or viral attachment difficult, even impossible. By blocking the bacterial wall from an appropriate life supporting surface, it cannot expand or grow and it will die naturally.

## IN NATURE

Plants like Lotus leaves and grasses have adapted robust defences against bacteria and viruses since the first single cell evolved around 400 million years ago. Microorganisms depend on numerous physical-chemical and electrical forces to successfully colonise surfaces.

Initially bacteria must land successfully on the surface and create an irreversible anchor via a range of complex adhesive bonds.

## How Does It Work?

The success of colonising surfaces is subject to the type of bacteria, substrate geography, surface smoothness, surface tension, oxygen / nutrient availability, pili strength, flagella size/ sensitivity, chemotaxis, shear and electrostatic forces, (pH, steric / ionic strength & van der Waals), to mention a few.

Water, the liquid -surface interface, is the common denominator for pathogenic cross-infection. The ability to repel water and water vapour from surface touchpoints is therefore a key element

Surfaces that incorporate hydrophobic (water repellence) and hydrophilic function water attraction), whilst leveraging surface charge and oxygen depletion, offer a simple and economic microbiota barrier to all surfaces in facilities that might pose risk of pathogenic cross-infection.

If we create stronger surface repulsive forces to that of attractive forces operating at the nano-bacterial scale, we can reduce risk for everyone.

