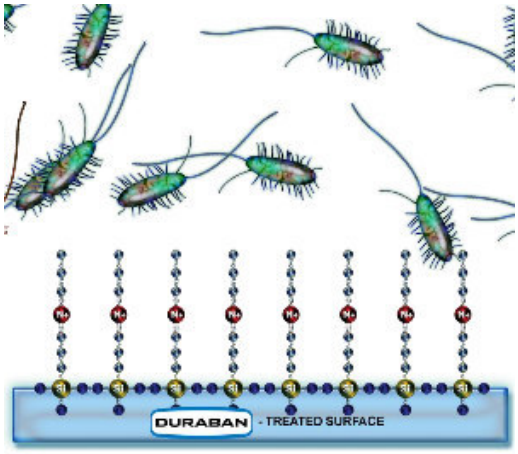
MOLD SOLUTIONS with Microbe Guard™

Your Permanent Solution to Mold



# Mold Solutions/Microbe Guard Technology.

# How Does it Work?




Microbe Guard's antimicrobial technology is a surface modifying antimicrobial treatment that creates a new surface that is resistant to microbial attack.

Unlike all other conventional antimicrobials, our products do not off-gas, leach, diffuse, migrate, volatilize or otherwise leave the surface to which they have been applied. The result is an extraordinary efficacy profile, unmatched by other products.

Antimicrobials can be divided into two major categories: bound and unbound. These terms refer to whether or not the antimicrobial has the capacity to molecularly bond to the surface on which it is applied.

An unbound antimicrobial has the greater potential for safety concerns because it must diffuse or leach from the treated surface and be consumed by the microorganism to be effective. Most conventional antimicrobials are intended to act quickly and dissipate quickly to minimize the danger to humans, animals and treated objects. Others use the time release capsule approach and obtain a longer working life by burying the antimicrobial in a paint, glue, binder or other coating and counting on slow migration to the surface. Conventional antimicrobials, even those applied in a carrier, must diffuse (wash off) and create a "zone of inhibition" in order to function properly.

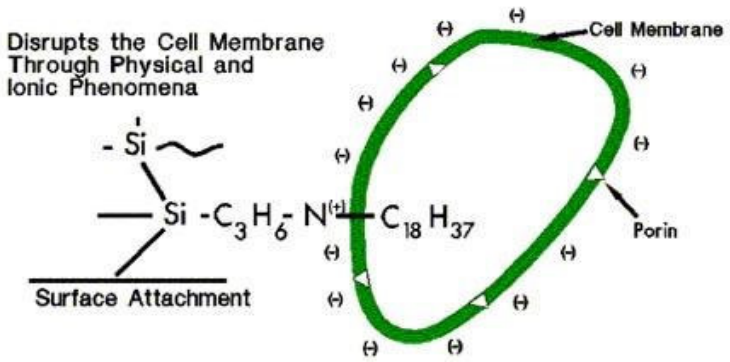
Once inside the organism, the chemical agent will act like a poison, interrupting some key metabolic or life sustaining process of the cell and causing it to die. Once the antimicrobial is depleted or washed away during regular maintenance, protection vanishes. After application, an unbound antimicrobial continues to diffuse or leach from the treated surface. As this diffusion continues, the target organism builds up a tolerance to those particular antimicrobials. Highly resistant strains can develop which are immune to what was once an effective dose. Just such a phenomenon (genetic adaptation) is of special concern to the health care industry which has observed the development of more potent strains of disease-causing organisms which are highly resistant to conventional antibiotics.

Mold Solutions/Microbe Guard's Antimicrobials, remain chemically attached to the surface on which it is applied. It functions by interrupting the organism's delicate cell membrane. This prevents micro-organisms from carrying on vital life processes. This antimicrobial acts on contact with organisms and can do so again and again. One can think of the bound antimicrobial like a sword which is capable of repeated use.

In comparison, a conventional antimicrobial treatment is more like a gun with limited ammunition.

Since a bound antimicrobial is fixed to the surface, it continually operates at full strength. This means the genetic adaptation process, which is an inherent problem with conventional antimicrobials, cannot and does not occur with a bound antimicrobial.

The chemistry of the product is unique. A conventional quaternary ammonium salt is chemically spliced to a silane molecule, resulting in a highly active molecule 3-(trimethoxysilyl) propyldimethyloctadecyl ammonium chloride that has both tenacious bonding capabilities as well as excellent antimicrobial properties. Once applied to a target surface it initially bonds to the surface on all available receptor sites (principally H+).




Afterward, stable bonds between remaining OH- sites on the molecule and the positive charge on the nitrogen atoms (N+) form, resulting in the creation of a large co-polymer involving the target and Microbe Guard's antimicrobial. Since there is no unused residue once the water evaporates, there is no dislodgeable residue or odor. Furthermore, no leaching, off-gassing, migration or diffusion of the molecule can occur.

All other conventional antimicrobials used legally, including quats, bleaches, heavy metals, peroxides, phenols, triclosan, formaldehydes, paint formulations, etc., work on the basis of diffusion away from the treated surface. This promotes adaptation, loss of activity, leaching, diffusion and creation of zones of inhibition.