

### Is there re-growth after treatment?

mPale, because of its unique chemistry provides long-term protection against re-growth and future contamination on treated surfaces. Porous surfaces, which are contaminated below the surface, will occasionally experience some growth, which breaks through a treated surface.

### When preparation is necessary prior to applying the treatment?

Surfaces should be thoroughly cleaned and any residue from cleaning agents must be rinsed from the surfaces to be treated. The final rinse should come off without any signs of dirt or foaming from the cleaners. mPact has created a compatible cleaning product (mPerial™) that also is a disinfectant. Used in tandem with mPale, a perfect Gameplan™ is initiated.

### How should a contaminate surface be treated?

Microbes can be extremely hazardous. Severe contamination with hazardous organisms may require cleaning protocols similar to those for asbestos removal. For normal contamination, solid surfaces should be thoroughly cleaned before treatment. Soft surfaces such as carpets and upholstery should be well vacuumed or professionally cleaned. Insulation can be cleaned and treated if only superficial growth on the surface is present. Insulation that has heavy growth or is damp should be removed and replaced.

### Will mPale affect the cooling capacity of AC coils?

Yes, and should actually improve the overall cooling performance of AC coils by minimizing organic fouling of surfaces. mPale helps minimize the microbial attack and attachment to fin and tube surfaces. An added benefit is its ability to act a permanently bonded soil release agent, making the coils much easier to clean. At application strength, mPale has surfactant properties, which cause excess treatment to run off. This prevents excess polymer buildup and potential heat transfer efficiency losses.

## Environmental Solutions by Zingones



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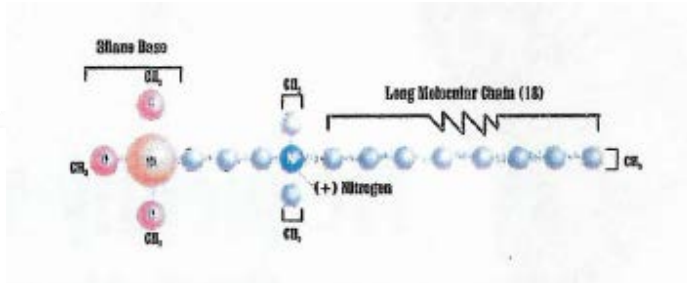
# Frequently Asked Questions

Durable • Effective • Environmentally Friendly



## How does mPale with AEGIS Microbe Shield Technology work?

The active ingredient in the mPale antimicrobial forms a colorless, odorless, positively charged polymer, which chemically bonds to the treated surface. You could think of it as a layer of electrically charged swords. When a microorganism comes in contact with the treated surface, the quaternary amine sword punctures the cell membrane and the electrical charge shocks the cell. Since nothing is transferred to the now dead cell, the antimicrobial doesn't lose strength and the sword is ready for the next cell to contact it. Normal cleaning of treated surfaces is necessary to prevent dirt, dead microbes, etc., but could cover the treatment, prohibiting it from killing microorganisms.



## What is the purpose of the silane portion of the molecule?

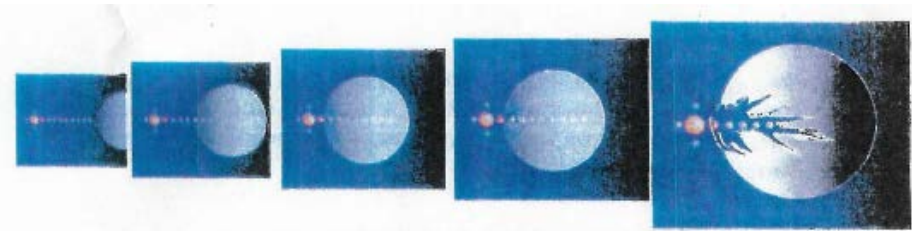
Silanes are extremely efficient bonding agents, which can be coupled to other molecules and then used to permanently bond those molecules to a target surface. This process modifies surface properties of building materials and transforms them to a material that will not support microbial growth.

## Is the mPale technology a quaternary compound?

mPale is an organosilane, but part of the molecule is a quaternary amine. Unlike traditional quats, which have a very short effectiveness and a limited kill spectrum, mPale is easier to use, provides long-term protection, and controls a very broad spectrum of microorganisms (including Gram(+) and Gram(-) bacteria).

## What is the difference between mPale and other antimicrobials on the market?

Conventional products penetrate living cells and kill by way of poisoning the organism. They are designed to act quickly and dissipate quickly to avoid adverse effects to humans and animals due to their toxic ingredients. Most commercial antimicrobials used for treating building surfaces do a great job of getting a quick kill on bacteria and fungi, although most have a limited spectrum of effectiveness. The mPale technology takes a totally unique approach. It provides an effective initial microbial kill when applied, like the conventional methods, but it also provides long-term control of growth on treated surfaces for the life of that surface. The surface itself is modified to make it antimicrobially active for the normal life of the substrate onto which it is applied.



*The cell membrane is attracted to the treated surface and punctured by the long molecular chain. This is a physical rupture. mPale is not consumed by the organism and stands ready to fight again.*

## Is there a test method to determine if mPale is present?

The mPale technology is based on an active ingredient that, in most cases, can be easily detected.

## How does mPale react to commercial and residential carpets?

The newer solution dyed carpets are excellent with mPale. There have been some instances of slight color fade with certain acid dyes. All carpets and upholstery should be tested for dye fastness prior to treatment.

## Is mPale permeable to moisture?

Yes, moisture that is in or on the treated material or surface passes through the treatment. After curing, the treatment is somewhat hydrophobic (water repellent), but it should not be considered a replacement for commercial water repellents.

## Does mPale give off gases during or after application?

No. It does not volatilize, dissipate, or leach onto other surfaces or into the environment. Its chemistry polymerizes where it is applied and forms a permanent bond that lasts for the life of the treated surface. Normal cleaning should not remove the treatment, although it can be abraded away.

## How long does the treatment last?

Since the cured antimicrobial is involatile, insoluble, and non-leaching, the treatment should last for the life of the treated surface. The life of the treated surface depends on a number of factors, not the least of which is surface preparation. If you treat a dirty or unstable surface, when the dirt comes off or the surface is disturbed, the effectiveness of the antimicrobial will decrease. Abrasive or caustic (pH.10.5) cleaners will also shorten effective life. In our experience, our home office applicators have seen effectiveness for three years or more.

