microbe free

ACTIVE DEFENSE AGAINST MICROBES

FreshStart™

CERTIFIED CLEAN INTERIORS

from Microbe Free Solutions

WHAT MAKES OUR TECHNOLOGY DIFFERENT MAKES US STRONGER AND LONGER LASTING:

Proven effective at reducing odors in over thirty years of product and building applications.

Extremely long lasting technology without repeated applications

Dramatically reduces the growth of germs on surfaces.

Applications guard against surface degradation caused by mold, mildew, and effects of harsh cleaners.

Prevents stains from setting into surfaces for easier cleaning.

The only system available that actively pulls microbes from the air and eliminates them on contact, improving overall air quality.

The only system available that can truly disinfect fabrics, carpeting, and upholstery.

Developed by Dow Corning Technology.

Microbe Free Solutions, LLC

Product Certification Training

Please fill out and return the certification form at the end of this training session.

What is Microbe Free Solutions?

- A full service corporation concentrating on indoor environmental quality, with an emphasis on air and surface contamination and protection

Connection with Aegis and mPact's Product Line

- Microbe Free Solutions has the rights to Aegis Antimicrobial
- Aegis 5700
  - Textiles
- Aegis 5772
  - Textiles
- Aegis Antimicrobial
  - Aftermarket

What Do We Do?

- License- training agreements
- Testing
- Consultation
- Application
- Product Sales
- Training

Why am I here with you?

- We are obligated by our agreement with Aegis and other manufactures to provide training to our customers.

- Also provide information about our other products.

Why do we train?

- Safety
  - You, your employees, and your customers
- Legal
  - Issues of regulation
  - Protecting you
- Performance
  - Products and applications

Who regulates our industry?

- EPA
- FDA
- States
- Associations and Organizations

Who is EPA

- Environmental Protection Agency
- FIFRA – Federal Insecticide, Fungicide, Rodenticide Act
- The mission of the EPA is to protect human health and the environment

FIFRA

- Under FIFRA, a pesticide product may not be distributed or sold in the United States unless it is registered with EPA
- Registration is a licensing process in which EPA determines whether the product meets the standards set forth by FIFRA

Basic product definitions

- Antimicrobial – literally means “against microorganisms”

- A substance, mechanism or condition that inhibits the growth or existence of an organism

Definition of a Pesticide

- FIFRA defines pesticide as:
  - Any substance or mixture of substances intended for prevention, destroying, repelling, or mitigating any pests

Definition of an Antimicrobial Pesticide

- A pesticide that is intended to disinfect, sanitize, reduce, or mitigate growth or development of microbiological organism or;
- Protect inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime…

Types of Antimicrobial Products

- Antimicrobial products are divided into two categories based on the type of microbial pest against which the product works:
  - Non-public health products used to control growth of algae, odor causing bacteria, bacteria which causes spoilage, deterioration or fouling of materials and microorganisms infections only to animals.

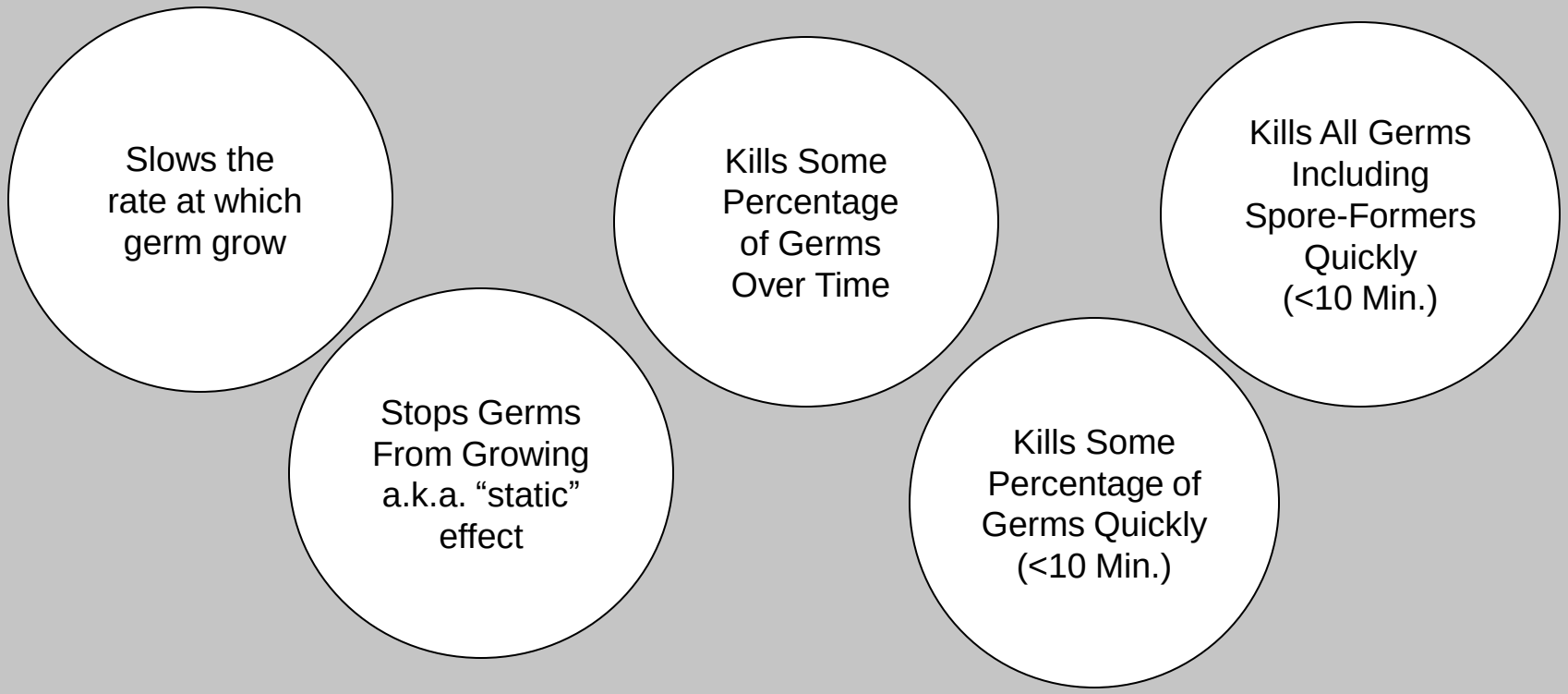
continued

- Public health products are intended to control microorganisms infectious to humans in any environment

FDA

- If a product makes a claim to control or prevent a disease on a person or animal it is categorized as a drug and is thereby regulated by FDA

Breadth of the Term "Antimicrobial"



Treated Articles

- Provision allowed by EPA to protect a product with an antimicrobial.

- Paint – mildewcide added to protect the paint

Health Claims

- Effectiveness against a microorganism should not be interpreted as eliminating, controlling, minimizing or otherwise affecting health conditions which may be associated with specific organisms

- DO NOT MAKE HEALTH CLAIMS!

Microorganisms

- Can be the most beneficial and destructive organisms on earth

- Penicillin
- Pasteurization
- Plague

Microorganisms

- Part of our everyday lives
- Bacteria, Fungi, Yeast, Algae, Virus
- Found wherever Moisture, Temperature, Food source and Receptive surfaces allow

Microorganisms

- In buildings, cause staining, deterioration, rotting, corrosion, and odors

- Can effect buildings structure, components, furnishings and inhabitants

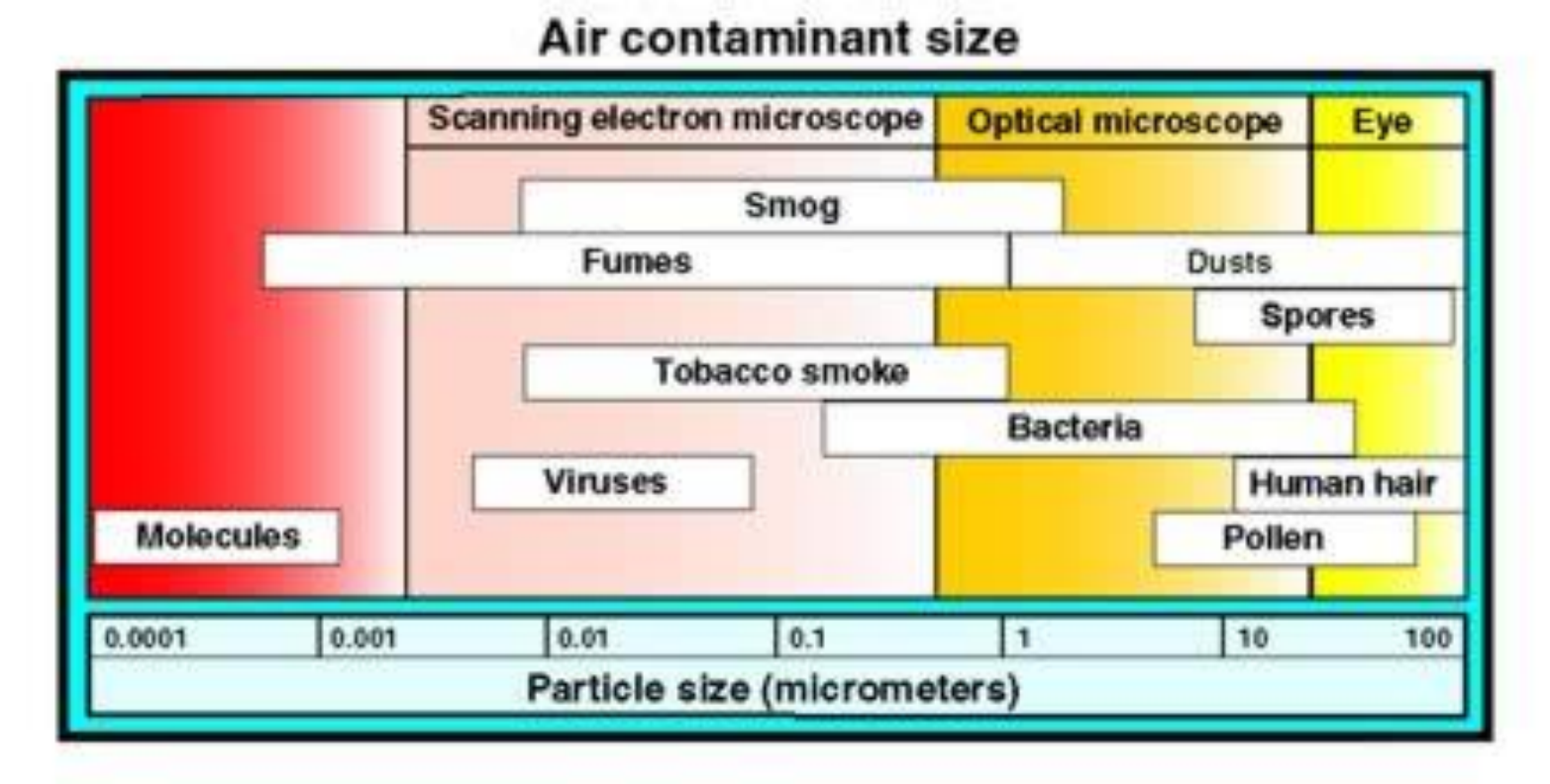
Exposure to Microbes

- Expose occupants of buildings to an array of debilitating effects
- Simple discomfort
- Physical irritation
- Allergic sensitization
- Toxic response
- Disease

Microorganisms
a short biology lesson

- Single cell structures
- Negative charge to outer membrane
- Very small
- Make up approximately 50% of the Earth's Biomass

Sizes of Particles



Bacteria

Single celled, microscopic, plant like, life form

Vary in size from 2 – 5 Micrometers, or roughly about 1/50,000 inch in diameter

Weigh about four/ten trillionths of one gram

Bacteria

- Classified and identified by a number of different characteristics including shape and grouping, motility, oxygen requirements, staining characteristics, and temperature requirements
- Gram positive and negative staining
- Positive retains purple color
- Negative turns red or brown or pink

Bacterial Infectious Disease

- Anthrax – Bacterial Meningitis – Cholera – Diphtheria – Legionellosis – Leprosy – Lyme Disease – MRSA – Plague – pneumonia – Rock Mountain Spotted Fever – Salmonellosis – Tetanus - Tuberculosis

Fungi

- Neither plant nor animal
- Different from Bacteria because they have a nucleus
- Reproduce by spores
- Are yeasts, molds, mildews, smuts, rusts, mushrooms

Yeast

- Not a mold but part of Fungi Family
- Beer
- Bread
- In buildings can be associated with slimes and pungent odors.

Mold

- Typically describes a Fungus growing on a surface
- Reproduces by spores
- Mold is a group of about 200,000 species of fungi
- Mold does nature's biodegrading

Mold continued

- Requirements for growth:
  - Temperature
  - Food source
  - Moisture
  - Oxygen
  - Receptive surface

Mold continued

- Spores:
  - Spores are ubiquitous in nature
  - Spore diameters are commonly between 2 and 100 microns
  - *Stachybotrys* sp. 5.7 microns
  - *Aspergillus* sp. 3.5 microns
  - *Penicillium* sp. 3.3 microns

Spores

- Spores can either be viable or non-viable
- Density up to one million spores per square inch on active growth

"Toxic Mold"

- Certain species of molds can produce toxins, called *mycotoxins*
- Molds use mycotoxins to inhibit the growth of other organisms
- Mycotoxins can be found in both viable and non-viable mold spores
- Response to mycotoxins depends on type, concentrations, and human sensitivities

Mildew

- Not the same as mold
- Technically, mildew grows on other plants
- Causes rot on plants

Mushrooms

- Large structures called fruiting bodies
- Reproductive end = what we eat
- Vegetative end = what is in the ground
- Roots can spread for yards or even miles

Algae

- Present in every environment where light is available
- They are plants – contain chlorophyll
- Usually green
- From tiny cells to giant multicellular structures i.e.. Seaweed
- Produce odors and toxic byproducts
- Can be corrosive, cause pitting in metal, foul heat exchangers, fuel

Virus

- Non cellular entities that can only reproduce in living cells
- Invade the cell, take over that cells function, reproduce
- Can attack animal, plant, fungus, algae, bacterium
- Can cause cell to die or just exist in the cell

Viral Infectious Disease

AIDS – Chicken pox – Common cold – Ebola hemorrhagic fever – Hepatitis – Herpes simplex – Influenza (Flu) – Measles – Mumps – Rabies – SARS – Smallpox – West Nile disease – Viral Meningitis - Yellow Fever

Fast reproduction

- A single organism can multiply from one to one billion in just 18 hours

- Mold-From onset of wet condition can colonize in 48 hours

Other microbiological particles

- Dander
- Dust mites
- Pollen
- Dust

Static vs. Cidal

- Stat – refers to an inhibition of growth without necessarily resulting in the kill of that target organism

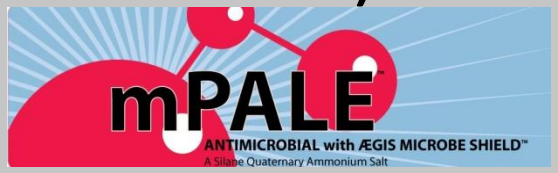
- Cide – to kill
  kills microorganism or controls their amplification

Three types of pesticidal action

- Disinfectant- chemical or physical process to destroy more than 99% of microbes capable of causing human disease
- Sanitizer – reduces the number of contaminants to safe levels as judged by public health requirements
- Sterilizer- destroys all living organisms along with their spores

Products we currently use.

- mPale Antimicrobial with Aegis Microbe Shield (EPA Reg.No. 83129-1)



- mPerial Detergent/ Disinfectant (EPA Reg. No. 1839-79-83129)

- Moxie Carpet stain remover and shampoo

mPale vs. mPerial

- Static
- Works on future growth
- Prevents
- Long term protection

- Cidal
- Works on current growth
- Kills
- Short mode of action

mPale Antimicrobial with Aegis Microbe Shield

- EPA Registered Pesticide
- What's in it?
- 3 (trihydroxysilyl) propyldimethyl octadecyl ammonium chloride
- .84%
- RTU formula

What does mPale Antimicrobial do?

- Biostatic Finish
- Protects the surface to which it is applied.
- Reduces the risk of “microbiological contamination”.

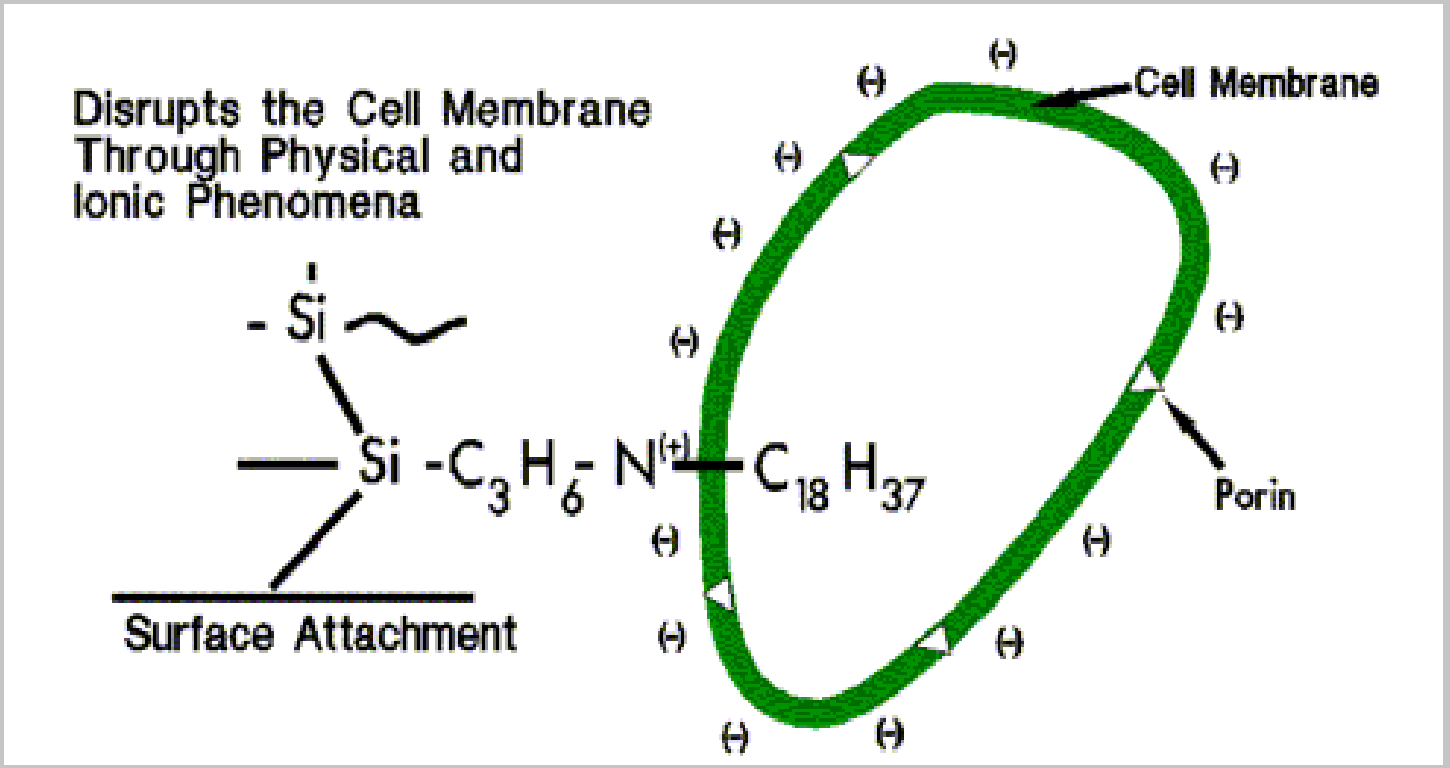
mPale physically disrupts the cell membrane through physical and ionic phenomena.

- Electro-mechanical kill mechanism
- Stabs the cell and electrocutes

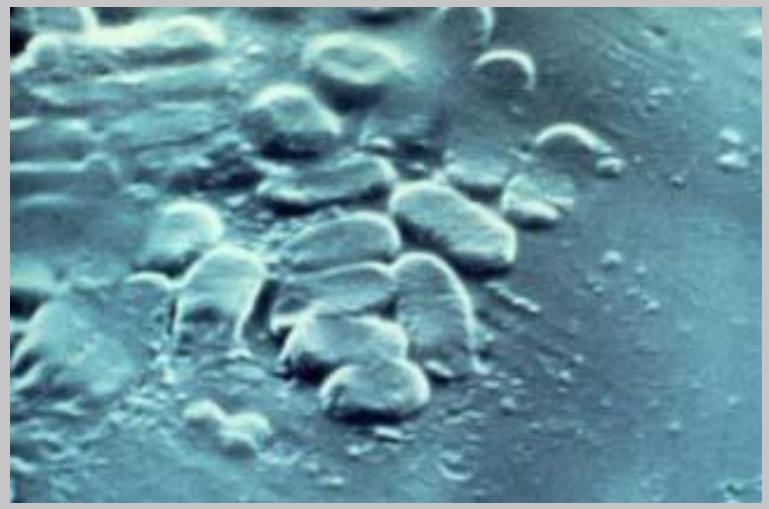
How it Works

- mPale Antimicrobial forms a long lasting polymer that is firmly bonded to the microscopic pores of any hard or soft surface to form a clear protective shield that lasts for the useful life of the surface.

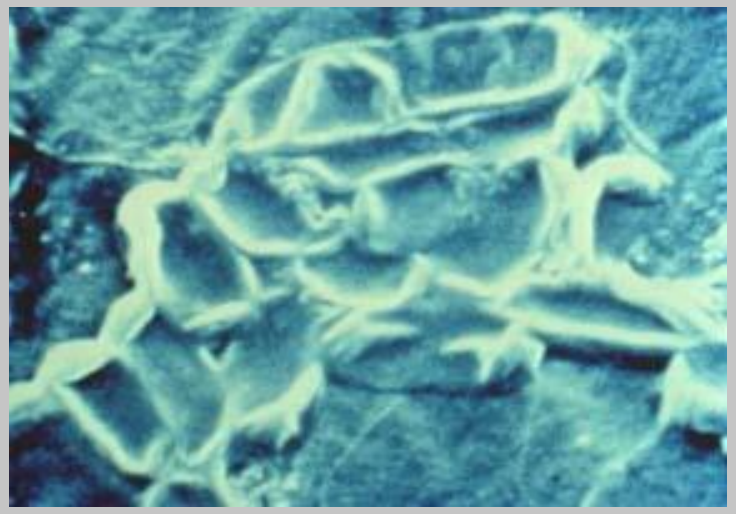
Chemical structure



E Coli Bacteria



UNTREATED



TREATED

Adaptive Microbes

- All microbes have the ability to adapt.
- Adaptation is caused by the microbe not getting a full (lethal) dose of poison
- mPale does not cause adaptive microorganisms because of its unique kill mechanism

Types of Germicides

- Chlorine
- Iodine
- Alcohol
- Peroxygen Compounds
- Phenols
- Aldehydes
- Quaternary Ammonium Compounds

Application Methods

- Wipe
- Spray
- Fog
- Electrostatic

Electrostatic

Coverage Rates

- Carpet = 250 – 400 sq/ft gal
- Fogging = 600 – 1200 sq/ft gal
- Electrostatic = 1000 – 4000 sq/ft gal

"Quats"

- Reduces surface tension and is attracted to negatively charged surfaces, including microorganisms.
- Denature the proteins of bacterial or fungal cell.
- Divided into 5+ generations of compounds

mPerial

- Detergent/Disenfectant
- *Virucide
- Fungicide
- Mildewstat
- Deodorizer
- Sanitizer

mPerial

- Ammonium Chloride
- Quat
- Specifically lists: Staph, MRSA, HIV-1,
- HBV, HCV, Norovirus, E Coli,
- Must follow instructions for proper kill.

mPerial Coverage Rates

- 200 – 800 sq/ft gal
  - One gallon of concentrate makes 64 gallons of diluted product
- Proper application of a quat to effectively kill is 3 – 10 minutes on surface before wiping off.
  - Very important in hospital environment

Moxie Carpet Cleaner and Stain Remover

- Proprietary product in the mPact family
- Specially formulated using modern stain lifting technology to remove stains and to be used as a carpet cleaner
- Will remove red dye

Microbe Free Solutions "Family" of products

All of these products have been formulated to work together.

A Hallmark of efficacy against harmful microbes

- Killing microbes is not the greatest challenge. Hundreds of products effectively kill microbes. The challenge is to do it safely, and in the realm of building protection, to do it with long term effectiveness. Traditional products are designed to dissolve or volatize and enter the target organism. Once inside, they work by poisoning the organism or triggering some other lethal effect. Many contain heavy metals (arsenic, lead, tin, copper, silver, mercury, etc.) or other toxins which, at high levels, can be dangerous to man and the environment. The unique polymer polymer coating of the mPale technology eliminates that possibility.
- One product will not hurt the others.

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Microbe Free Solutions Product Training Certification

Company Name: _____

Location Info: _____

Full Name: _____

Signature: _____

Date: _____

Please complete, sign, date and print this form. Return to training@microbefreesolutions.com