

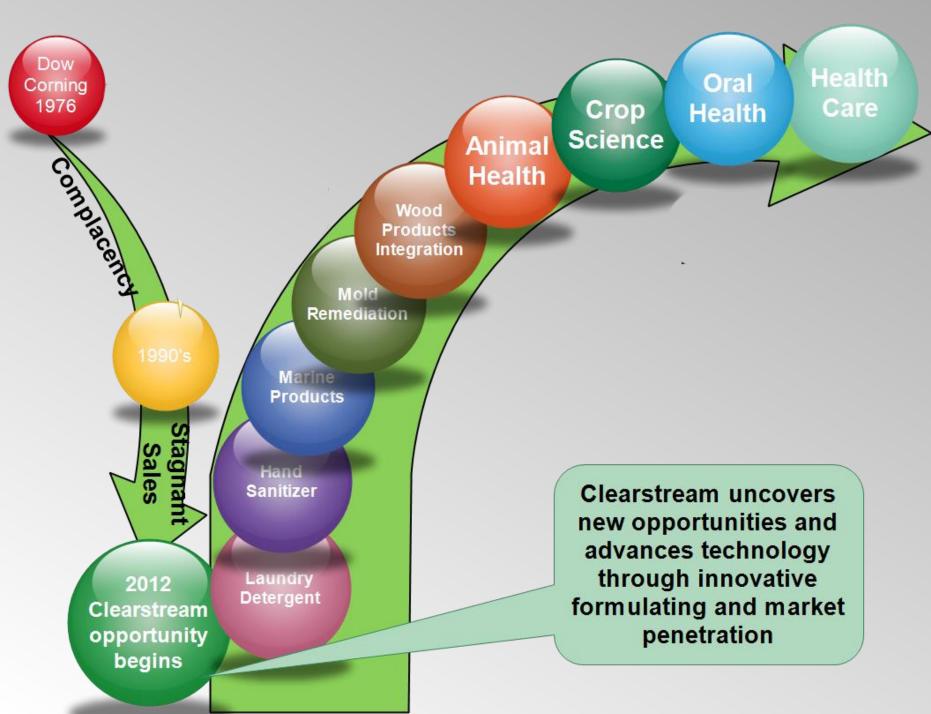
#### **Clearstream** technologies



**Total Touch Protection** CREATING CLEANER, HEALTHIER AND SAFER ENVIRONMENTS.



**Penetre** 



# 2018

- FDA Food Contact Surface Approval
- 2 patents pending
- 3 more patents ready to be filed
- 6 new formulas created
- Custom products for 2 fortune 50 Pharmas



**Total Touch Protection** CREATING CLEANER, HEALTHIER AND SAFER ENVIRONMENTS.

- PeneCide Disinfectant COMING SOON
- Eliminates 99.99% of microbial contamination
- Daily use cleaner, sanitizer and disinfectant
- Penetrexx Antimicrobial Finish
- Lowers ATP (adenosine triphosphate) scores
- Physically bonds to surfaces for long-lasting protection
- mPulse Hand Sanitizer
- Extends germ-fighting protection for up to 8 hours
- Reduces germ-transfer between hand washings
- mPower Laundry Detergent
- Embeds long-lasting protection into fabrics
- Keeps fabrics fresher between washings

#### **Quaternary Disinfectant-Detergent**



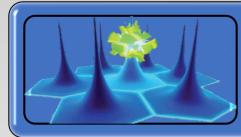
#### Penetrexx Silane Quaternary Ammonium SiQuat - QAS

# Around the clock touch surface protection.

MediDefense Antimicrobial Finish creates a protective shield on treated surfaces which continually fights microbial contamination between



#### What does Penetrexx offer the market place?



A residual technology solution that maintains efficacy between cleanings and disinfections by reducing the build up of biofilms and microbial colonization



Penetrexx Currently holds EPA and FDA regulatory approvals for use in animal protein production companion animal health and human health care



Successful implementation of the technology in a diverse variety of institutions, and facilities.



Diverse and cost-effective application methods provide the user efficacy and insure a return on investment

#### Penetrexx

goes beyond standard disinfectants

Penetrexx
Residual Protection between cleanings
Lasting hours, days and even weeks

**Chlorine bleach** 

Formaldehyde and aldehydes

**Quaternary ammoniums** 

Chlorhexidene

Sodium hydroxide

#### **Phenols**

# NO RESIDUAL PROTECTION

# **Penetrex**



 With AEGIS Microbe Shield Technology
 ATTHE INGREDIENT:

 Long Term Biostatic Antimicrobial Surface Protection
 3 Intributionsynthyl propyldimethyl

 Effective on Hard, Soft, Porous or Non-Porous Surfaces
 scradecy attributionsynthyl propyldimethyl

 TOTAL:
 93.161

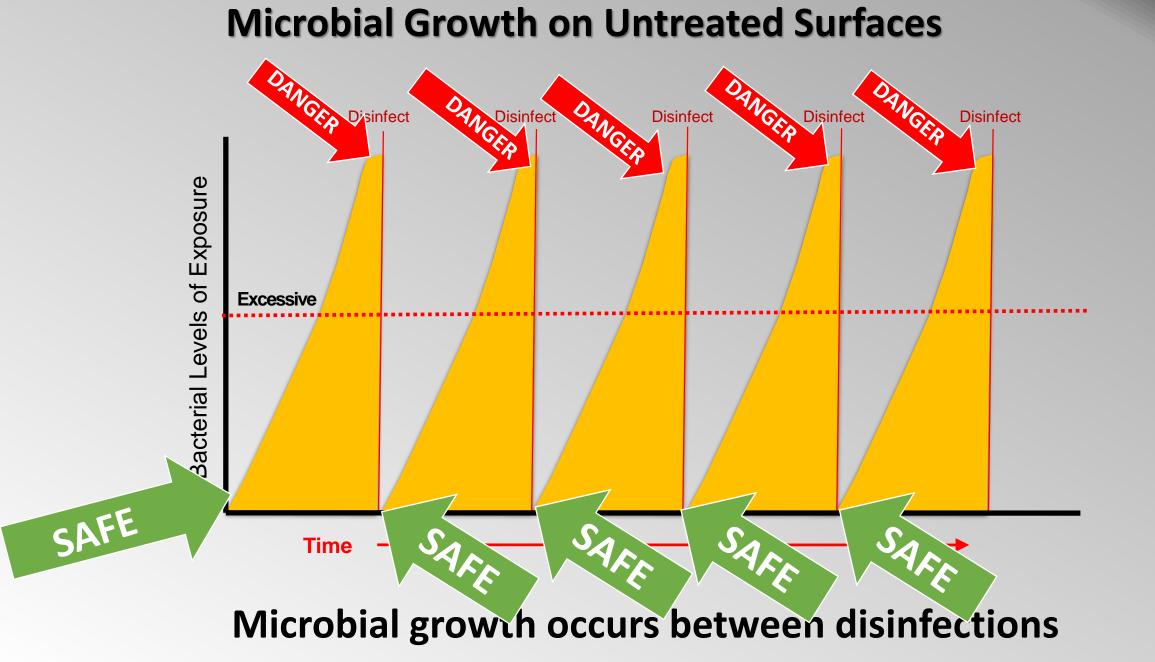
 TOTAL:
 100.101

#### ISE AS A FINAL BACTERIOSTATIC FINISH IN HIGH TOUCH AREAS

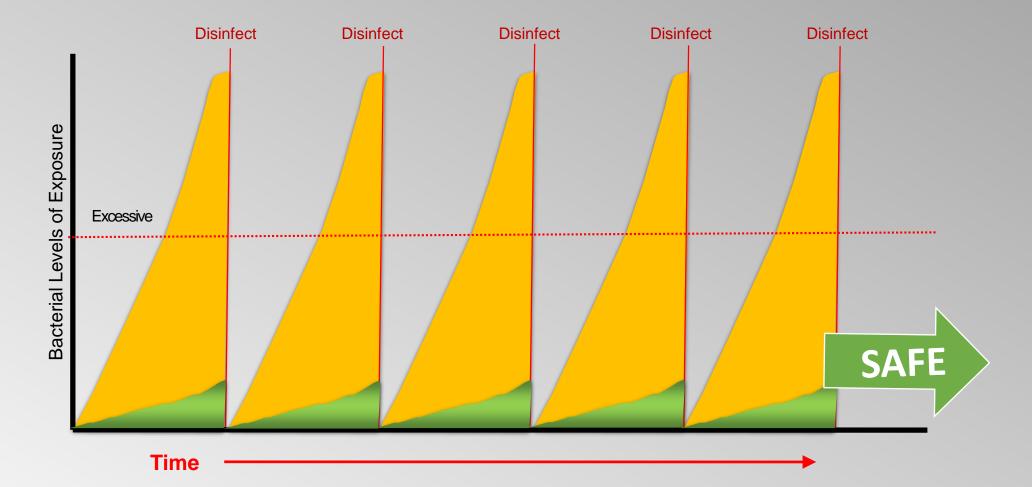
P OUT OF REACH OF CHILDREN

-IBST ADE Spee: Hold gre-open and rises slowly and grantly with varter for 15-30 minutes. Remove strate tenses, it presents, then first the minutes. The control on minutes in the strate tenses is not with grantees in not breathing, and 11 or ambodiance, then grant and minutes in the strategies and the provide strategies and the strategies and the strategies and the strategies and the minutes that the does not a strategies and the strategies and the strategies and the strategies and an uncernicides previous and the strategies and the strategies and the strategies and the an uncernicides previous and the strategies and the an uncernicides previous and the strategies an





#### **Microbial Growth Comparison**





## **Clearstream** technologies

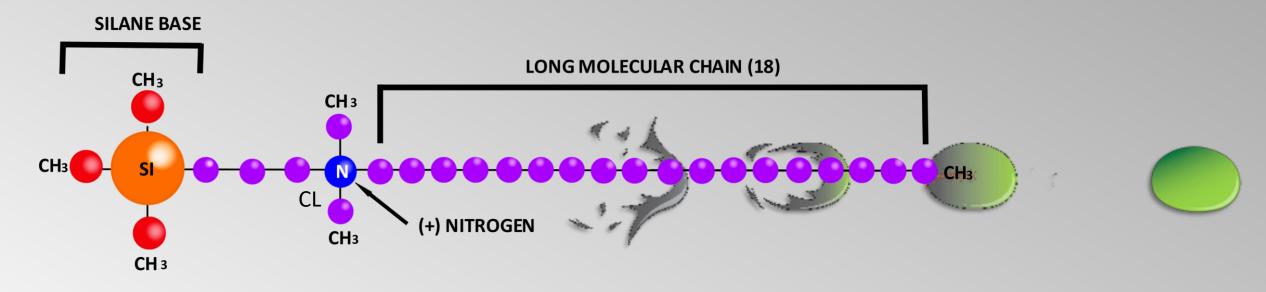
 An antimicrobial technology formulated from a Silane Quaternary Ammonium (QAS) chemistry platform.

#### Penetrexx

Active Antimicrobial Barrier bonds to treated surfaces for long term protection as a bacteria-static finish

## **Penetrexx Mode Of Action**

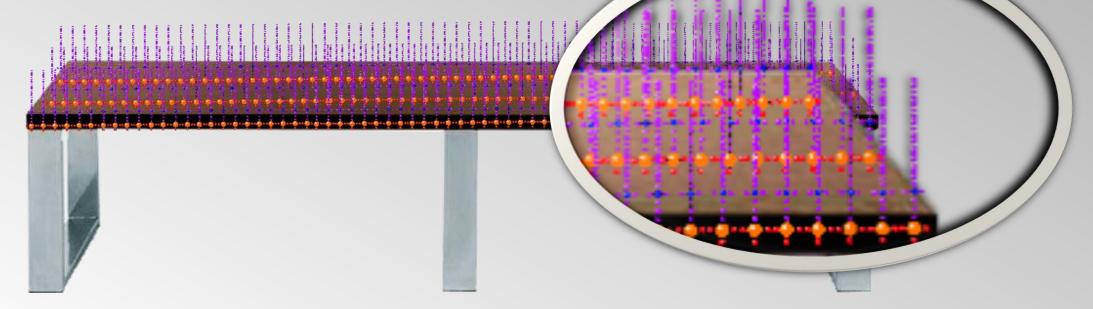
# Negatively charged microbes are attracted to the positively charged molecular chain.



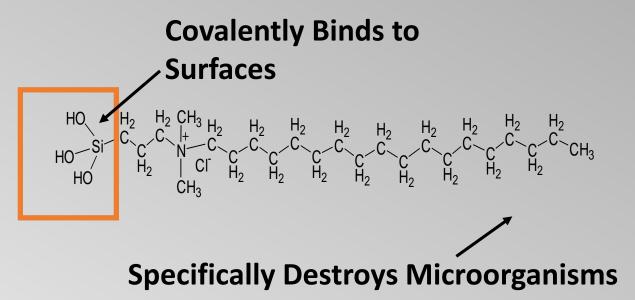
Offending microbes are lysed and electrocuted. This is characterized as an electromechanical mode of action.

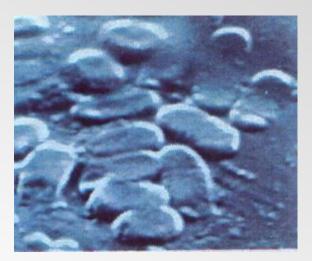
#### **Polymerization and Crosslinking Attributes**

- When the antimicrobial is applied it forms a covalent bond that cross links and polymerizes to itself and the target surface.
- The simplistic view below conveys the cross linking of the molecules. Under intense scanning electron magnification the bonding sites as well as the nitrogen atoms are aligned in a very uniform structure.



## How does the technology work?







Cytoplasmic absorption of nutrients is disrupted and the structural integrity of the cell is destroyed

E. coli bacteria on untreated surface E. coli bacteria after contact with residual antimicrobial on treated surface



#### **Penetrexx delivery methods**













Locations: Hospitals, nursing homes, elder care centers, elder care facilities, medical and dental offices and clinics, physician offices, operating rooms, surgical suites and surgical theaters; radiology rooms, isolation wards, quarantine areas, hospices, medical research facilities, washing areas, intensive care units (ICU's), autopsy rooms and morgues, sick rooms, skilled nursing facilities, rehabilitation and physical therapy facilities, hospital emergency rooms and independent emergency clinics, outpatient clinics, oral maxillofacial surgical centers, prosthodontist offices, prosthetic manufacturing facilities, independent and out-patient surgical centers, treatment rooms, diagnostic facilities, X-ray facilities, CAT scan & MRI facilities, public areas, waiting rooms, nursing stations, pharmacies, laboratories, laundries, equipment rooms, administrative and staff offices, medical records areas, patient care rooms, recovery rooms, exam rooms, newborn nurseries, neonatal units, orthopedics, respiratory therapy, blood collection rooms, central supply, housekeeping and janitorial areas, ophthalmic and optometric facilities, hospital ships, military hospitals including M.A.S.H. units, public showers and restrooms, restaurants, cafeterias, institutional kitchens, hospital dietary kitchens, walk-in coolers and freezers, food storage areas, food handling and processing areas, emergency vehicles, ambulances, police cars, fire trucks, critical care and organ transport vehicles, EMS, fire and police stations; military, police, and fire training facilities and barracks.

Surfaces: Hospital beds, mattresses, mechanical systems, headboards, footboards, control panels, and adjustable side rails, side tables, over the bed tray tables, telephones, cell phones, call buttons, remote controls, case goods, door handles, computer trays, computer screens, keyboards, mobile computer stands, stands with blood pressure, pulse, temperature monitoring devices; physical therapy tables, IV stands, diaper changing stations, infant bassinets, cribs, warmers, incubators, folding tables, hampers, hospital upholstered and hard surface waiting room chairs, tables, safety hand rails, medical examination and treatment furnishings, wheelchairs, gurneys; medical diagnostic, examination, and monitoring equipment; heart and breathing/monitors, stethoscopes, blood pressure devices, EKG and EEG equipment, MRI/CAT scan equipment, X-ray equipment, medicine carts, rehabilitation and therapy equipment, ventilation tents and oxygen masks, dental: drilling equipment compressed air systems, examination chairs, pedestal lighting, magnification equipment, suction/vacuum systems, and anesthesia equipment; waste receptacles, washing machines, water drinking fountains, laboratory equipment; autoclaves & sterilizers, mixers, ovens, vent (fume) hoods, centrifuges, water purifiers, incubators, stability chambers, spectrophotometers, pipettes, beakers, tubes, glassware, biosafety cabinets, chillers, microplate equipment; hospital soft goods: upholstered furniture, linens, gowns, patient and healthcare provider garments, towels, blankets, pads, privacy curtains, other bedding, pillows & pillow covers, disposable diapers (non-woven), feminine napkins, adult incontinence products, fabrics: woven and non-woven, natural, and synthetic; disposable wiping cloths, air filters for furnaces, air-conditioners, air purification devices, building materials and components for: floors, walls, ceilings and fixtures, cabinetry, wallboard, wood and wood components, plumbing fixtures, finished baseboards and windowsills, metal structural components, vinyl, stone, brick, cement, concrete, doors, windows, composite materials, painted surfaces, glass surfaces; aluminum, brass, copper, metal, plated steel, stainless steel; glazed porcelain, tile, and ceramic; sealed granite and marble, plastics, sealed limestone, slate, stone, terra cotta and terrazzo; chrome, Plexiglas<sup>2</sup>, enameled surfaces, countertops, laminated surfaces, Formica<sup>2</sup>, washable wallpaper, windows, mirrors; shower stalls, doors and curtains; basins, bathtubs, chrome plated intakes, commodes, urinals, vanity tops, 

## Non-Alcohol Hand Sanitizer With BAC and QAS Technology

#### Defining the future of hand sanitizers.

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MediDefense Hand Sanitizer is a revolutionary new alcohol-free formula with advanced technology proven to extend germ fighting protection up to 8 hours.

#### **Competitive Advantage**

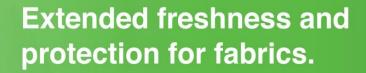


#### **REFILLABLE WALLMOUNT SYSTEM**



Automatic OR Manual

#### Laundry Detergent With QAS Technology



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MediDefense Laundry Detergent embeds antimicrobial protection into laundered items during the wash cycle for long lasting freshness.

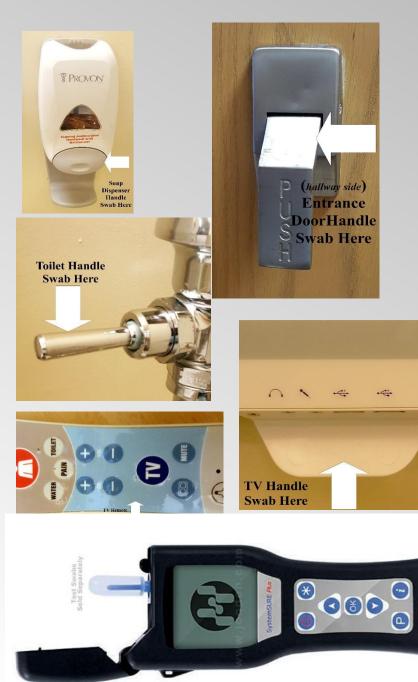
#### **Revitalize Protection**

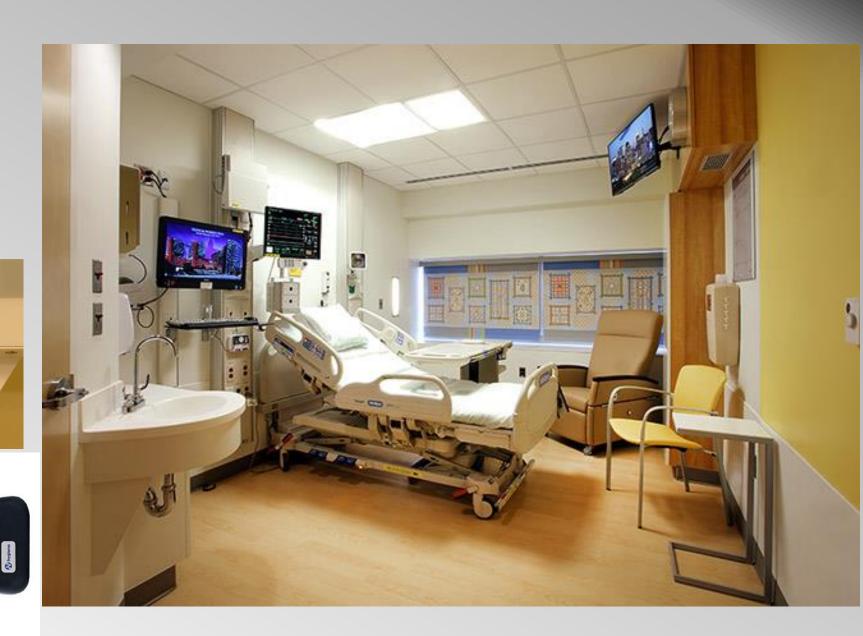


#### MEDI DEFENSE mPower LAUNDRY DETERGENT

- Embeds an EPA registered antimicrobial into fabrics and textiles durring wash cycle
- Enhances and refreshes protective barrier with every wash
- Protects against bacterial sources of odor between washes
- Phosphate free detergent is non-toxic, hypoalergenic and environmentally safe
- Keeps fabrics and textiles fresher longer

# **Calvert Health Medical** Center Trial 1



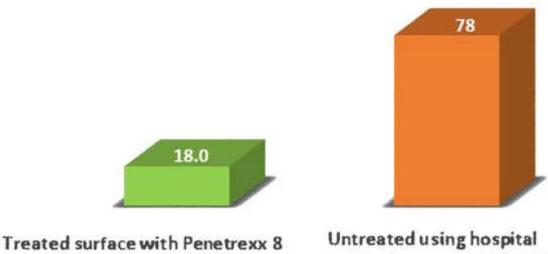


## MEDIDEFENSE **Penetrexx**<sup>™</sup>

In a recent hospital study **Penetrexx** out performed standard hospital protocols by more than 4 to 1 in head to head ATP counts

**Calvert Memorial Penetrexx** Efficacy Study

18.0



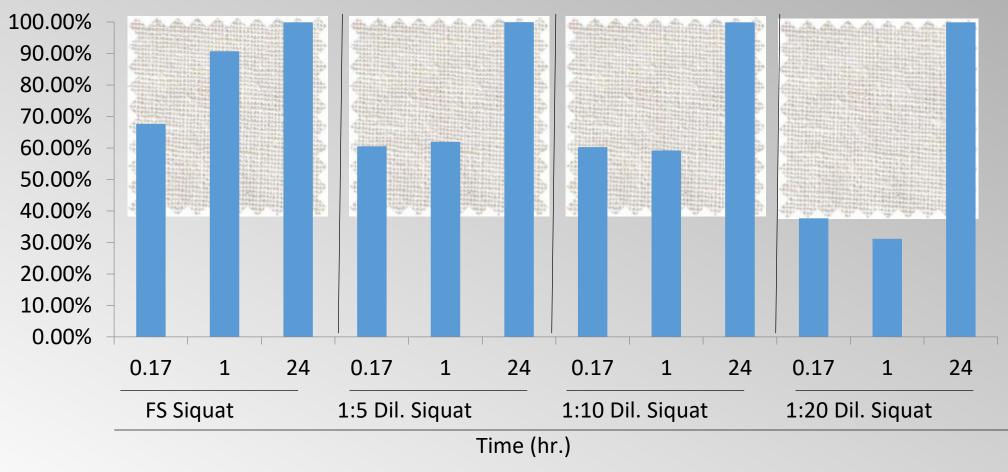
Week Average ATP Score

standard protocols 8 Week **Total Average ATP Score** 

Effective against a wide range of micro-organisms

# **Antimicrobial Test Laboratories** AATCC 100 Test Efficacy Against Staphylococcus epidermidis

#### Percent Reduction Compared To Time Zero



FS= Full Strength

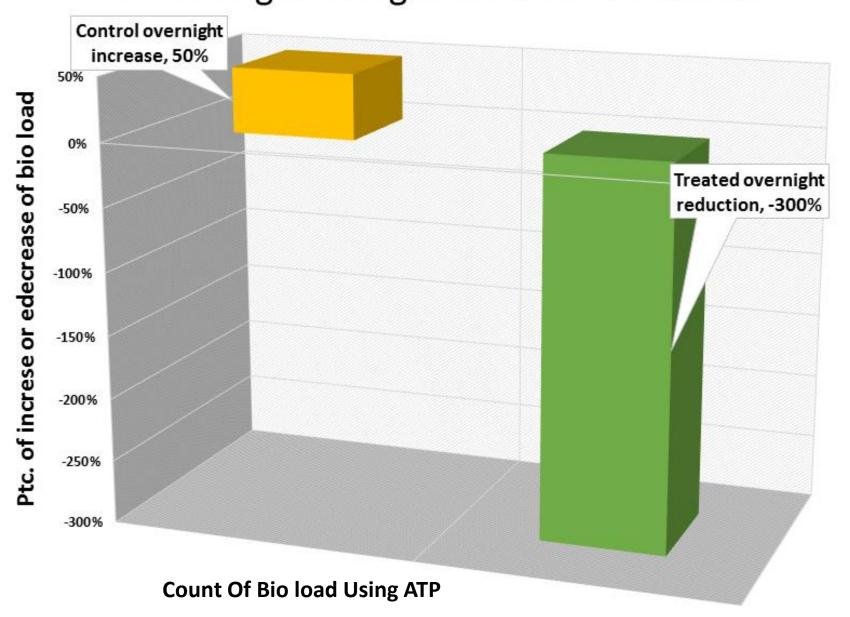
# **Microbial Detection Comparison** Medical Office Suite West Palm Beach, FL

#### Dr. LA Vinas Six Week Study of SiQuat Efficacy Against Bio Loads on Medical Suite Surfaces

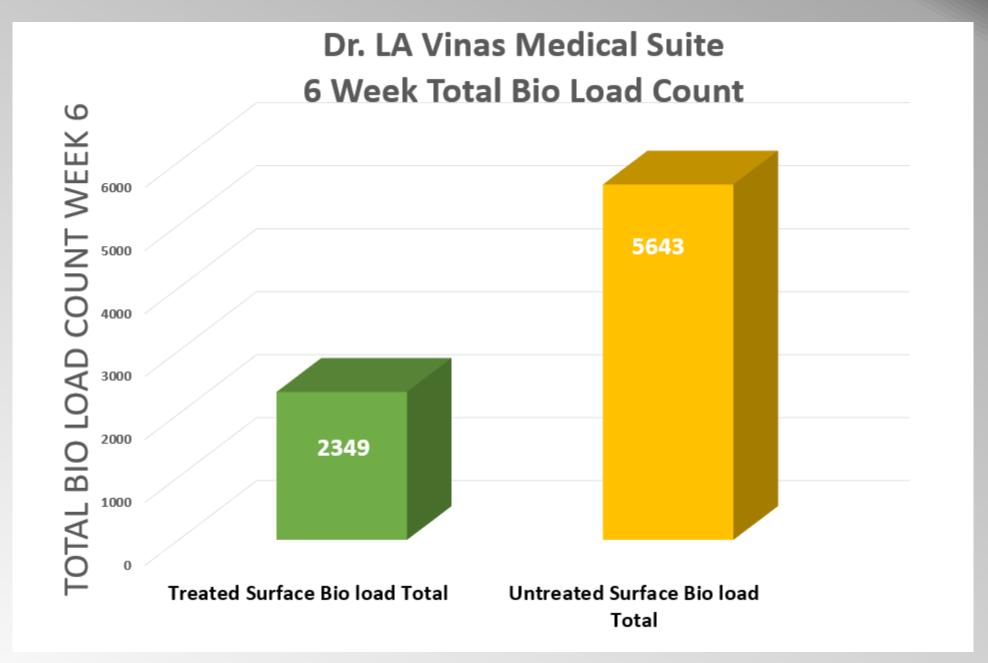
- Study was conducted over six consecutive weeks
- 40 data points were selected
  - 20 treated (test) and 20 untreated (control)
- ATP swab samples were obtained between 6pm and 7pm once per week on treated and untreated control points and then again the following morning between 6am and 7am
- These samples were then compared to one another
- The following graph shows the average percentage of growth and average percentage of reduction of bio load for the control and test data points respectively over the entire six week period



**Example of Data Points** 



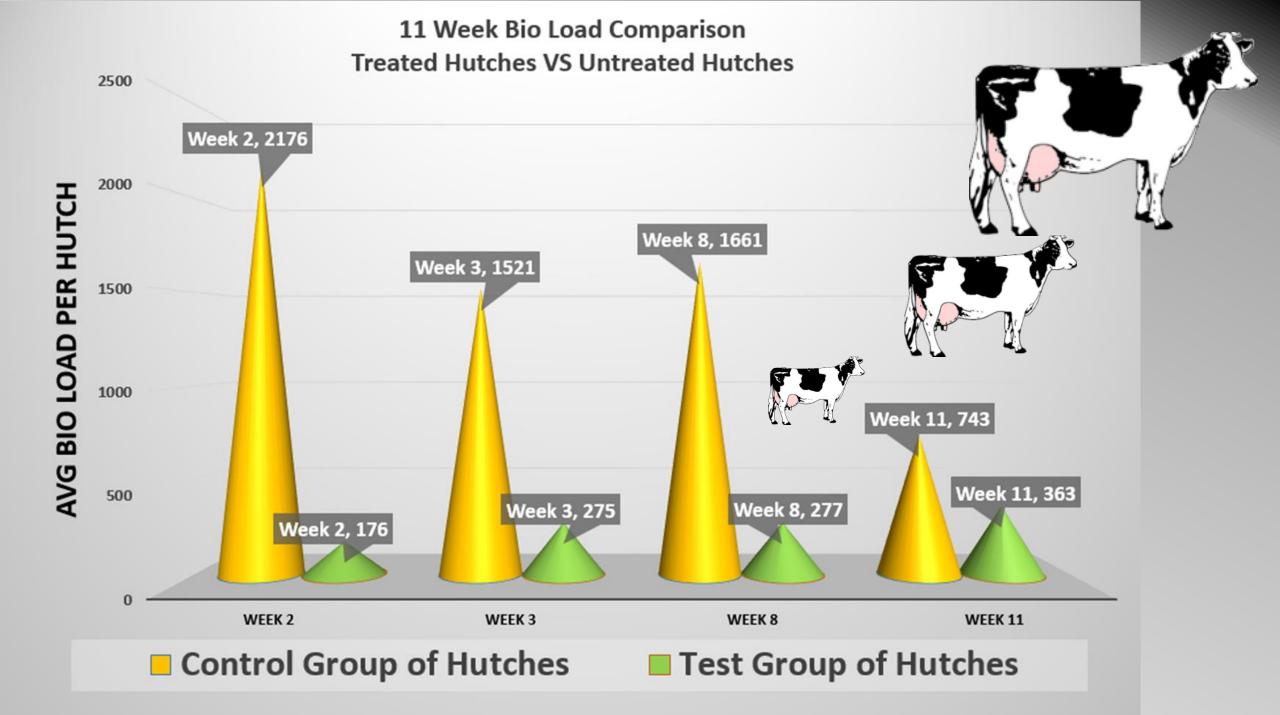
#### 6 Week Avg Overnight Bio Load Reduction



# Calf Hutch Comparison Study Conducted With Purina Nutrition Plainsville, Texas

## Dairy Calf Hutch Study Conducted with Purina Animal Nutrition:





# **Current** Georgia **Broiler House Comparison Study**

#### Wall/Ceiling of Broiler House Being Electrostatically Treated With Tractor Mounted PTO Driven Unit

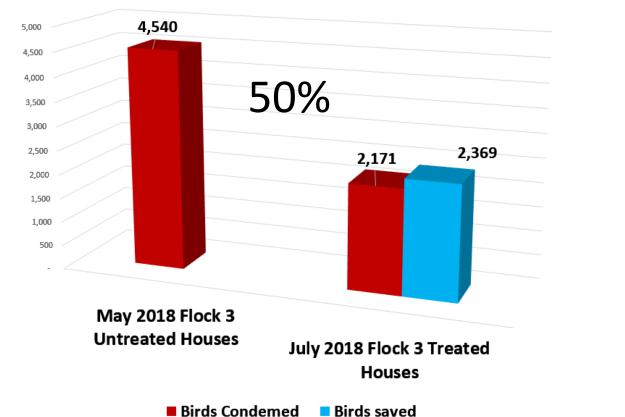


BC FARM Comparison Untreated	MAY	JULY		
Houses Flock week ending 05-06-	UNTREATED	TREATED		GAIN/LOSS
2018 to Treated Houses Flock	3 HOUSE	3 HOUSE	GAIN/LOSS	AVERAGE PER
week ending 07-22-2018	TOTAL	TOTAL	TOTAL	HOUSE
Total lbs.Sold	549,108.00	568,060.00	18,952.00	4,738.00
Birds started	65,700.00	65,700.00		
Birds Condemned	4,540.00	2,171.00	(2,369.00)	(592.25)
Birds Saved			2,369.00	592.25
Mortality Rate	6.910%	3.304%	52.18%	52.18%

#### BA Farms 4 house treated and untreated comparison

BA FARM Comparison Untreated				
Houses Flock week ending 05-13-	MAY	JULY		GAIN/LOSS
2018 to Treated Houses Flock	UNTREATED	TREATED	GAIN/LOSS	AVERAGE PER
week ending 07-29-2018	4 HOUSE TOTAL	<b>4 HOUSE TOTAL</b>	TOTAL	HOUSE
Total lbs.Sold	727,152.00	746,293.00	19,141.00	4,785.25
Birds started	87,600.00	87,600.00		
Birds Condemned	5,591.00	3,311.00	(2,280.00)	(570.00)
Birds Saved			2,280.00	570.00
Mortality Rate	6.382%	3.780%	40.78%	40.78%





BA-1 Farm 4 House Mortality Study

