



# SchoolSafe

*Enhanced Hygiene for  
School Systems*



# Mission

Utilize physics and chemistry to improve indoor air and surface hygiene when our children and community need it most.

# About Trinks Consulting Group

## Business centered around antimicrobials

- Healthcare (HAI / CAI Eradication)
- Industrial (Employee Absenteeism / Environmental Safety)
- Agriculture (EPA Restrictions / Fine Reduction)
- Recreation (Cruise line Safety / Hospitality Industry, Gyms)
- Retail (Odor Reduction / Antimicrobial Laundry Additive)
- Liability Risk Mitigation / Lawsuit Avoidance

## Product Agnostic

- Find best in class products, design and implement symbiotic technologies and integrate them into profit solutions



# SchoolSafe Agenda

## PHASE 1

**Identify the Problems**

## PHASE 2

**Increase Indoor Air Quality (IAQ) and implement infection control solutions**

## PHASE 3

**Develop monitoring tools for the staff to ensure system compliance**

## PHASE 4

**Construct Cost/Benefit Analysis**

# Our Approach

**Trinks Consulting Group** recognizes that there are no silver bullets in the world of infection control. We know the problem is complicated and will require multiple solutions.

Let us attack this problem for you by

- Using a systematic layered approach focused on proven methods of transmission and transference.
- Instituting state of the art technologies to alleviate costs
- Implementing disruptive technologies to provide superior outcomes

# Methods of Transmission



## Surfaces

*Touch Contamination*



## Textiles

*Spore Capture / Bacteria*



## Hygiene

*Hand Washing*



## Exposure

*Outside Sources*



## Air

*Vectors / Air System Handling*

# Schools are the key facilities for transmitting microbes throughout our communities

The *toxic* combination:

low  
humidity



“Super-Emitter”  
children



toilet flush  
aerosolization



flu  
outbreak

*Low humidity ensures that airborne viruses will stay aloft and travel great distances*

Most school HVAC systems were designed to extend the life of the system itself, not protect students and staff from particulates.

# Student Transmission in Facilities

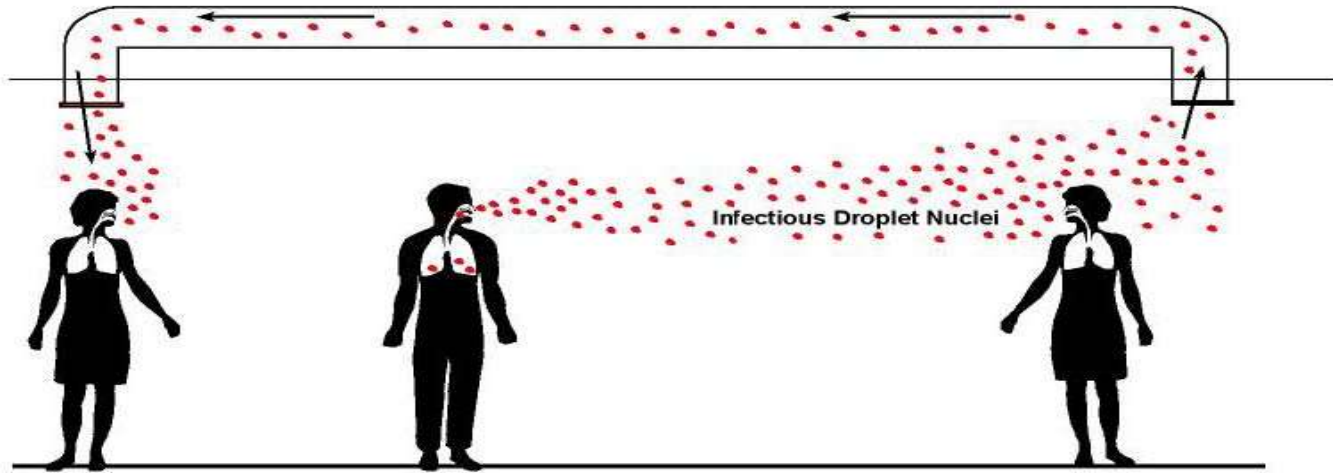
*“Increases in school absenteeism mark the beginning of a new epidemic, suggesting that school-age children play a critical role in disseminating influenza viruses. Increases in school absenteeism are typically followed by increases in work absenteeism.” -Virologist Peter Wright<sup>1</sup>*

**Schools now have many good reasons to take a vested interest in advocating for clean and properly humidified air in their buildings.**

1. Professor Pediatrics, Pathology, Microbiology and Immunology Chief, Division of Pediatric Infectious Diseases Vanderbilt University School of Medicine



# Infectious Droplet Nuclei travel within buildings



# Indoor Air Quality Approach

We understand that decreasing overall particulates and bio-burdens found in confined spaces leads to requisite decreases in associated cleaning costs along with decreased risk of microbial touch contamination and exposure to nosocomial organisms.



# Schools and Influenza Virus Transmission

- Children possess immature immune systems, and thus may become 'Super- Emitters' capable of infecting 60+ classmates.
- Many schools have dry environments consisting of 15-25% indoor relative humidity levels, creating the perfect environment for airborne viral transmission and contagion.
- Few schools in the U.S. recognize the importance of Indoor Air Quality (IAQ) standards and the effects it has on students and staff.
- Most bathroom designs do not incorporate floor level exhaust vents.

# Air – Particulate Containment Filter

*Question: How do we keep microbes from initially entering the HVAC system?*

*Answer: We add a preventative barrier.*

- A new synthetic media substrate has been developed that has efficiencies to meet or exceed Indoor Air Quality (IAQ) compliance standards now being mandated nationally (MERV 13 50%@ 0.3 micron).
- The main advantage to this media is unlike current hard-sided microfine glass filter technologies it is a soft, flexible pad with very low static pressure that can be cut to conform to any filter configuration and may be utilized with existing filter frames.
- No need to retrofit existing filter frames and holders and may be used with odd-sized modules, unavailable from commercial manufacturers.
- Works on low flow systems-PTAC (Packaged Terminal Air Conditioner) and split air handling units, reduces need for continual dusting of surfaces.

Air – Particulate Containment Filter

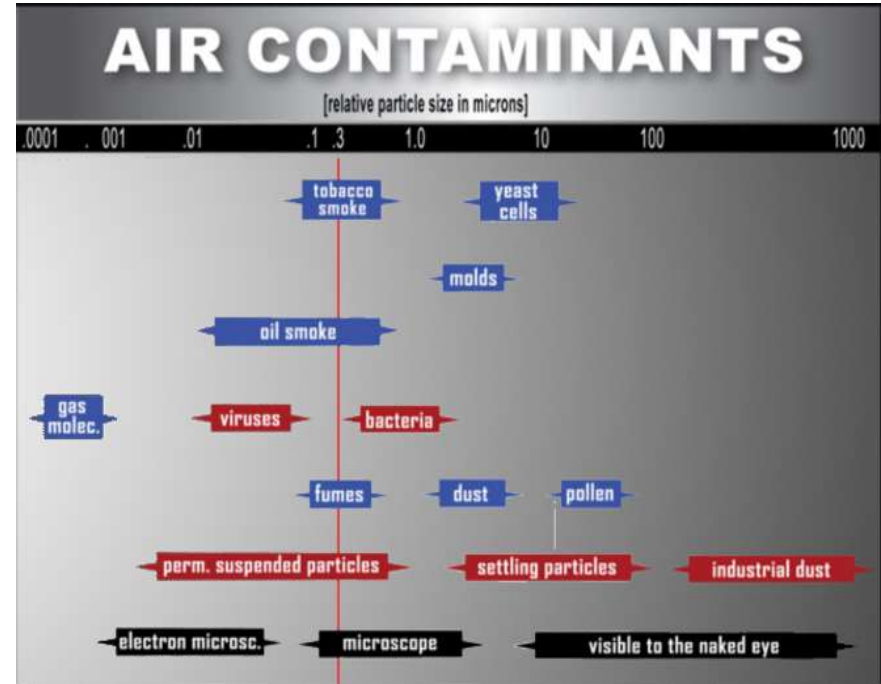
# Air – Particulate Containment Filter

- This disruptive technology allows for particulate filtration at the return vents directly in the room and common areas of the building.
- Sanders Series 150 material provides MERV 16 level air and removes 95% of particulates @ 0.1 micron (far exceeding the national mandate) on a single pass.
- The particulate containment filter can be installed and removed easily and requires no retrofit to the existing HVAC main system.
- This allows the preventive capture of microbes as they are about to enter the HVAC system, thereby drastically reducing the migration of organisms from one area of the facility to another.
- Attaching this media is as simple as using double-sided tape.



# Air – Particulate Containment Filter

- Each cough or sneeze can produce over 1 million airborne vector particles per incident.
- The only low resistance material considered effective on particulates of this size.
- Many of these particulates are drawn into the HVAC system that acts as a dispersal mechanism and collects dust like a magnet.
- School system filtration for heating, ventilation, and air conditioning systems were designed primarily for the purpose of protecting the heating coils from dirt not the transmission of contaminants.
- Protect students, staff and visitors from particles the size of known pathogens.
- Capable of working on independent air movers and HVAC systems.



# Air – Particulate Containment Filter

- As a flat cut pad with no frame, it can be implemented rapidly to assure compliance standards are met within days not weeks, even when unconventional size requirements exist.
- The system may be configured to continually monitor Indoor Air Quality (IAQ) with results being provided to cloud based storage, with alert parameters being phoned, e-mailed, or texted to the user should upper or lower limits be breached.
- Allows generation of time period reports to assure appropriate standards are maintained.
- Air filtration scalable to meet customer needs and budgets, limited installation training required.

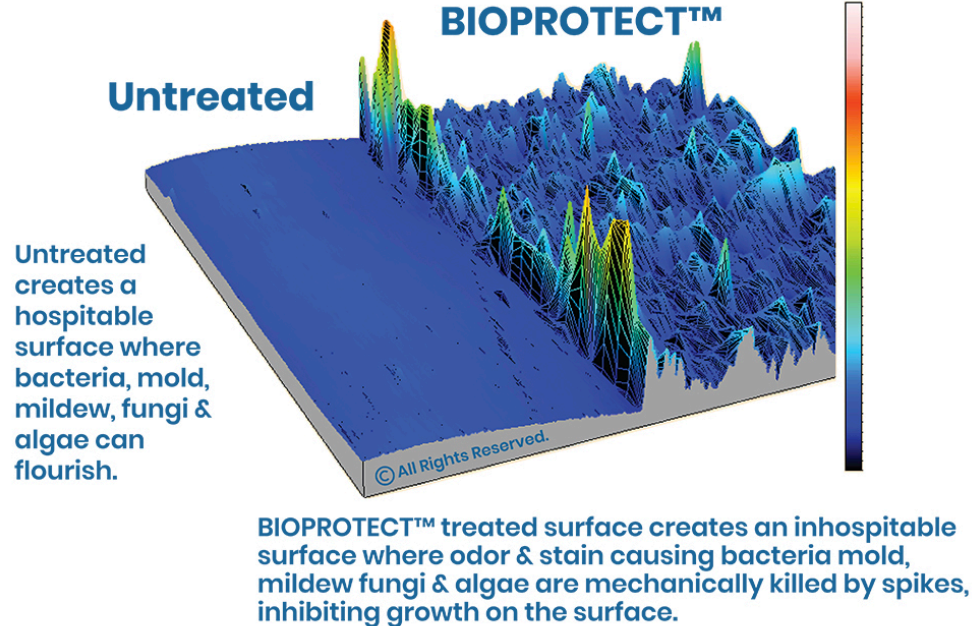


# Sanders Portable Filtration Provides Instant Benefit for Indoor Air Quality



# BIOPROTECT™ Technology

When applied to a surface or incorporated into a material, BIOPROTECT™ forms a covalent bond with the substrate and creates a microbiostatic antimicrobial protective layer, making it unreceptive to microorganisms. The coating forms a nano-bed shield of spikes (self-assembling monolayer), each of which carry a positive charge that attracts the negatively charged microorganism. Once attracted, the molecular spikes pierce the cell and rupture its cell membrane, causing the microorganism to die. Wipe on, spray on, fog on, or electrostatically spray on. Protect with BIOPROTECT™.



# **BIOPROTECT™ Biostatic Agent + 90 Day Surface Protectant**

- Effective on highly abraded surfaces for up to three months
- Eliminates mold, fungus, algae, bacteria, and other odor causing microbes
- Organic, non-toxic, non-leaching, water-based molecule
- Persistently kills organisms mechanically instead of chemically
- EPA approved for porous and non-porous surfaces
- Works on textiles in laundry solutions, provides anti-static component
- A Silicone Quaternary Ammonium Salt (Organo-Silane Molecule)
- Approved for direct food and pet contact



# BIOPROTECT™

## 6 Hour Hand Sanitizer

- Regular hand sanitizers work only when the product is wet
- BIOPROTECT™ unique alcohol-free foaming hand sanitizer delivers 6-hour residual protection on skin surfaces
- Child safe and works continually throughout the day
- Benzalkonium Chloride/Aloe formulation, non-sticky, non-greasy, no odor
- Once applied the material bonds to the skin surface and provides continual protection even after hand washing/hygiene procedures
- Product allows for handling of small items which are surface sanitized by the residual product on the hands
- Application on hands reduces cross contamination throughout the environment
- Reduces student and staff absenteeism and presenteeism

# Surface Antimicrobials

## Chlorine Dioxide Solution

## Chlorine Dioxide - *Off Gassing Tablets*

## Hypochlorous Acid - *Disinfectant*

- **CLO<sub>2</sub>** is an all-purpose, hospital grade, multi-surface cleaner, broad spectrum disinfectants/biocides
- **Off Gassing Tablets** require no labor – simply place the tablet in the appropriate container of water
- **Chlorine Dioxide** is the CDC's recommended product for disinfection of PPE vs Ebola. Eliminates smoke and odors
- **Hypochlorous Acid** is made naturally by white blood cells in all mammals for healing and protection
- **HOCl** is a powerful oxidant that is effective against bacteria, fungi, and viruses

## Label Claims Bacteria and Fungi

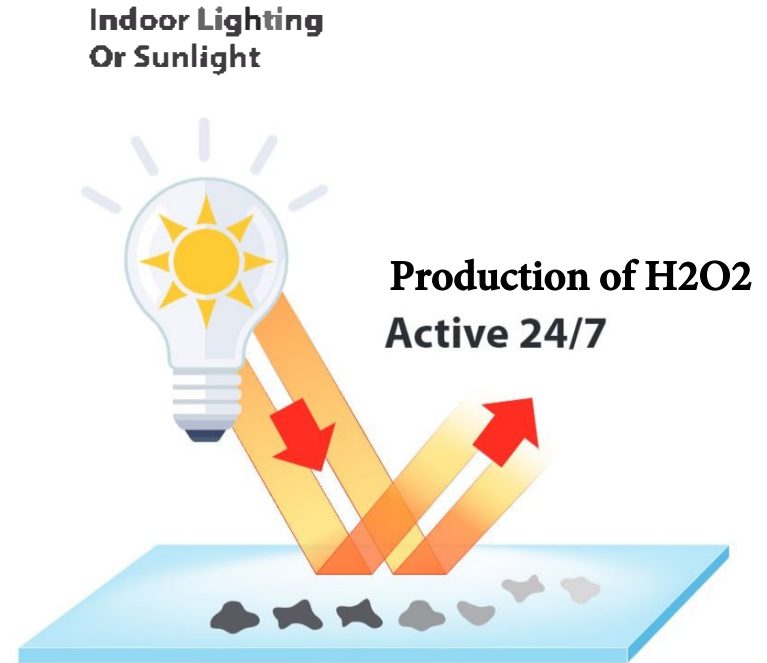
- Salmonella enterica
- Escherichia coli
- MRSA
- Salmonella enterica
- Acinetobacter baumannii
- Staphylococcus aureus
- Legionella pneumophila
- Aspergillus niger
- Enterobacter aerogenes
- Listeria monocytogenes

## Label Claims Viruses

- HIV-I
- Norovirus (feline calicivirus surrogate)
- Respiratory syncytial virus
- Rotavirus
- H1N1 flu virus
- H5N1 flu virus
- Hepatitis B
- Hepatitis C

# Simix S.P.O.T. ON Antimicrobial Technology

Simix™ provides a high pH gradient making surfaces inhospitable to microbes, additionally it also contains Sustainable Photocatalytic Oxidation Technology. This system (S.P.O.T - ON) contains titanium dioxide inside the Simix™ Coatings, Cleaner and Degreaser. Titanium dioxide is a safe, naturally occurring compound that reflect natural and artificial light. As the light is reflected, it converts water in the surrounding air into hydrogen peroxide, which breaks down bacteria, organisms, mold, grime and stains and creates a constant cleaning barrier surrounding the treated surface.



**Liquid Cleaners and  
Disinfectants Leave  
Behind Biofilm**

**Simix Cleaner**

**Detergent**

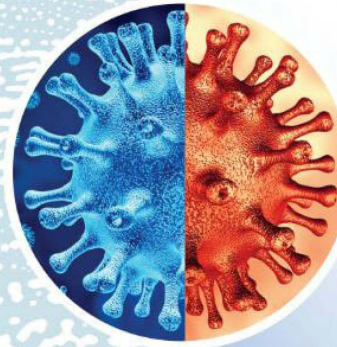
*Dissolves the  
lipid membrane*

**Hydrogen Peroxide**

*Destroys Bacterial  
structure*

**High pH**

*Hostile to organisms  
and microbial growth*



**Biofilm is a Hideout for Viruses  
and a Food Source for Microbes**

**Simix Removes and Prevents  
Biofilm Build-up**



# BIOPROTECT LS 420 Textile Technology

- Organic product non-toxic, water-based molecule laundry softener for clothing, uniforms and textiles (tablecloths).
- Add ½ ounce to an average laundry during the rinse cycle to turn garments antimicrobial and hydrophobic.
- Extends garment/uniform life as bacteria feed off dead skin cells imbedded within the clothing fibers.
- When the BIOPROTECT™ treatment has dried and establishes its mechanism of defense the matrix inherently adds beneficial hydrophobic qualities to textiles with which it has been applied.
- This process enhances the material's ability to resist spills, soiling, liquids and absorption of sweat and body odors while still allowing the garment to significantly *breath* and provide evaporative cooling.
- Provides Anti-static component
- Exceptional odor control

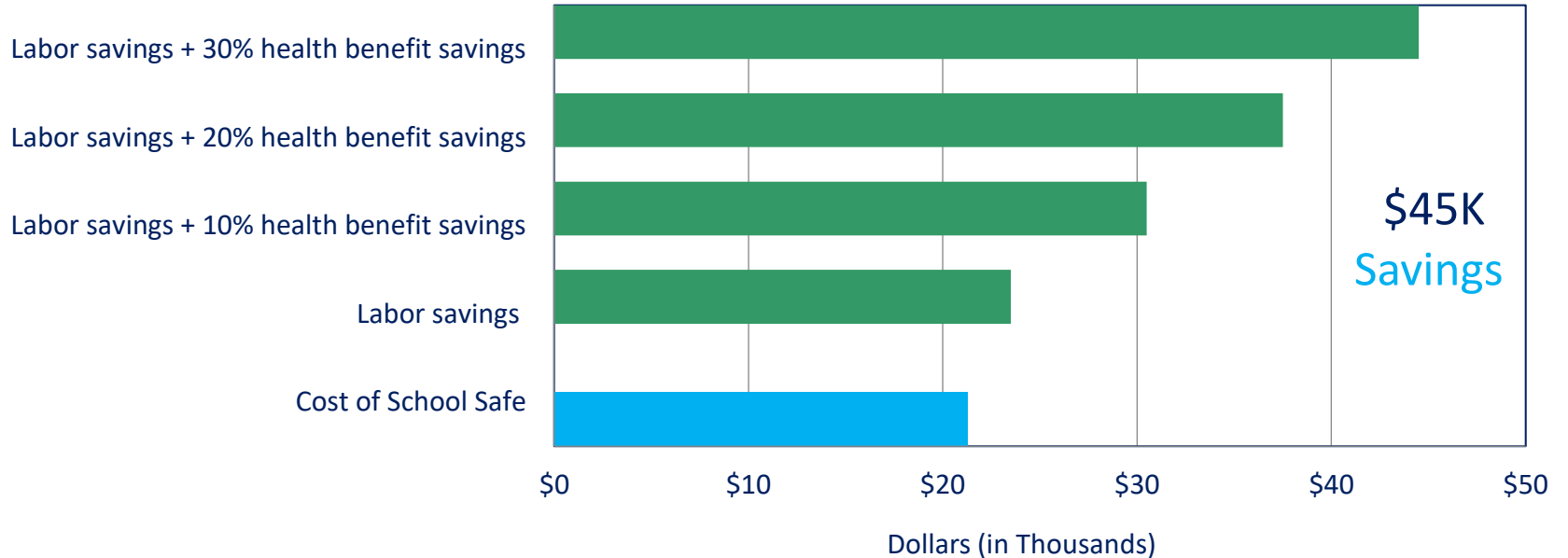
# Keep Students Safe

- ✓ **Clean** all Transport Vehicles with Microfiber
- ✓ **Disinfect** with Chlorine Dioxide Off-Gassing Tablets
- ✓ **Protect** with BIOPROTECT™ Technology



# SchoolSafe

## Estimated Savings and Benefits per Facility



# SchoolSafe Summary



## Lower Operating Costs

*Cleaning, Staff Absenteeism  
& Presenteeism*



## Helps Ensure Safety

*of students and staff*



## Better Attendance

*Potentially more government  
reimbursement*



## Environmentally Safe

Infection Control Program

BIOPROTECT™

LS 420 Laundry Treatment

Simix™ Products

Sanders Filters

6-Hour Hand Sanitizer

Chlorine Dioxide

Hypochlorous Acid

Environmental

Monitoring