

# MDF-500

Anti Bacterial | Disinfectant | Decontaminant | Cleaner | Deodorize | Bactericide | Virucide | Fungicide



ENGINEERING TOMORROW'S ENVIRONMENT

modec inc.



**Bactericidal Activity-** When used as directed MDF-500® exhibits effective disinfectant activity against the organisms: Staphylococcus aureus, Salmonella choleraesuis, Pseudomonas aeruginosa, and meets the requirements for hospital use.

**Fungicidal Activity** - MDF-500® has been demonstrated to be fungicidal against fungal spores (Trichophyton Mentagrophytes)

**Remediation** - As MDF-500® is a disinfectant and neutralizing cleaner, it provides professionals with an unmatched remediation tool. It cleans and restore surfaces and areas affected by mold and its chemical metabolites. In addition, it is safe to use in virtually any indoor remediation application

**Restoration** - MDF-500® has been shown to be an effective cleaning agent for Microbial Volatile Organic Compounds [mVOC's] and mycotoxins, chemicals by-products that have been known to be allergenic. MDF-500® mitigates conditions caused by these metabolites of mold. MDF- 500® can be used in exterior applications on porous surfaces to inhibit mold the growth of mold.

## Our Experts



**James Singletary**

**BIOD 201**

Environmental, Microorganism, DecontaminatDon Defense Threat. ReducDon University, Defense Nuclear Weapons School, Department of Army, Navy, Marine Corps and Air Force, United States Of America.



**Dr. Mitchell E. Fadem**  
**Ph.D. | Senior Scientist**

Toxicology, Infectious Disease Control, Medical Disinfection, Decontamination, CBRN, Oil Spill Remediation, Biomedical Toxicologist, Biosafety and Biosecurity Lead Sandia National Laboratories, Defense Threat Reduction Agency and US Strategic Command's Combating WMD division



**Phil Walls**

Hazardous Materials Handling, Shipping, and Emergency response

Hazwoper (Hazardous Waste Emergency Response, IATA, IMDG, DOT 49 cfr, Certified Hazmat Trainer, Hazmat Mitigation, Austere Environment Administrations and Leadership)

# MDF-500 Story



**MDF-500® was developed through a initiative by the US Departments of Energy and Homeland Security and Sandia National Laboratories to counter chemical and biological warfare toxants**

The Modec Decon Formulation efficacy has been proven under independent AOAC test methodologies to be effective against a broad spectrum of weaponized chemical and biological agents, chemical toxants and pathogenic organisms

Span-Worlds's Decon Formula MDF-500® is the EPA registered commercial version of DF-200 and is manufactured by Span-World, pursuant to its license No. 15-N08036 with Sandia Corp. MDF-500® is registered with the USEPA under FIFRA No.80346-1/2.

## Why is MDF -500® so effective?

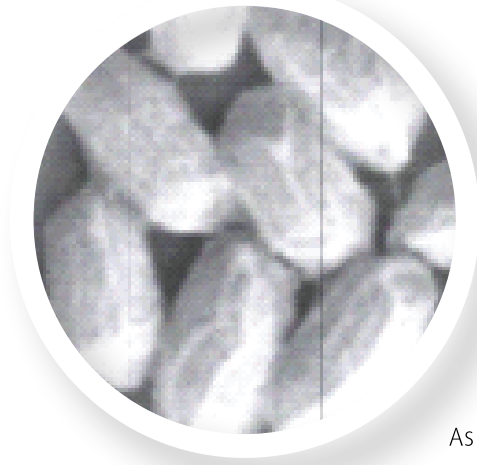
One of the activated compounds in the formula is an organic peroxygen. This chemical along with others formed in the final MDF-500®, causes various reactions to take place when in contact with microorganisms.

The actions of the mixture punch holes in the organisms outer protective layer allowing other chemicals in our product to infiltrate the organism's internal osmotic pressure. This leads to a total collapse of the structure and again the destruction of the organisms. Chemical decontamination is another feature of MDF 500®. There are other mechanisms related to chemical destruction, decomposition and neutralization that take place in the presence of organic chemical contamination.



## Kill of Anthrax Simulant (Basillus Astrophaeus)

Scanning Electron Microscopy



As Recived



Sandia Decon Formulation  
Contact Time : 1 Hour

## What is the basic chemistry of MDF-500®?

**MDF-500® is composed of two separate chemical solutions:**

Part A is made up of cationic surfactants, hydrotropes, water soluble organics and some inorganic salts.

Part B is a stabilized Hydrogen Peroxide solution between 3 and 7%. The mixture forms several different chemical compounds that facilitate the decontamination process.

◀ Destruction of Bacterial Spores in the Sandia Decon Formulation

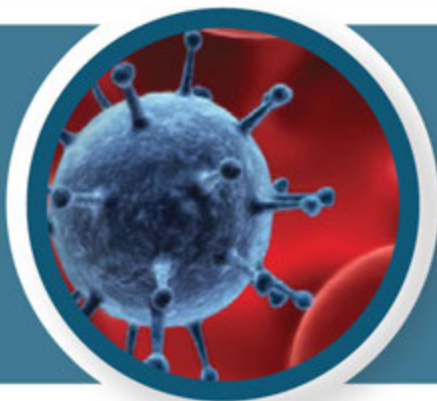


## MDF-500 Proven Effective Against but not limited to

Aflatoxin  
Anhydrous Ammonia  
Aspergillus Niger  
Bacillus Globigii  
Bacillus Subtillus  
Bacteriophages  
Bovine Coronavirus  
Bovine Enterovirus  
Butyl Isocyanate  
Capsaicin (Pepper Spray)  
Enterobacter Aerogenes  
Enterococcus Faecalis

Erwinia Herbicola  
Escherichia Coli (ESBL)  
Escherichia Coli O157:H7  
Enterobacter Aerogenes  
G Series Nerve Agents  
Influenza A & B  
Klebsiella Pneumoniae  
Listeria Monocytogenes  
Malathion  
Methamphetamine  
Mustard(HD)  
MRSA

Mycotoxins  
Norovirus  
Paclitaxel(Taxol)  
Pathogenic Avian Fl (HPAI)  
Penicillium Variabile  
Proteus Mirabilis  
Pseudomonas Aeruginosa  
Salmonella Choleraesuis  
Staphylococcus Aureus  
Staphylococcus Epidermidis  
Vancomycin Resistant  
Enterococcus Faecalis (VRE)



## MDF-500 is Proven Effective Against a Broad Range of organisms

### Virucidal

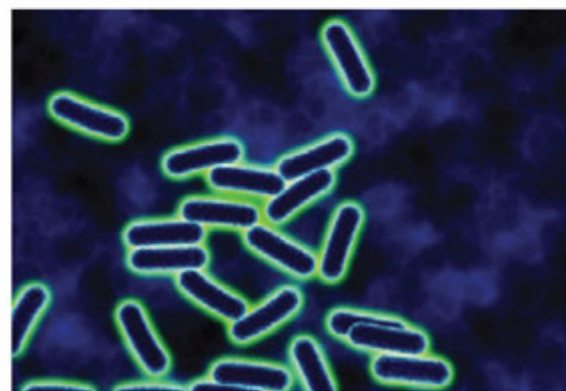
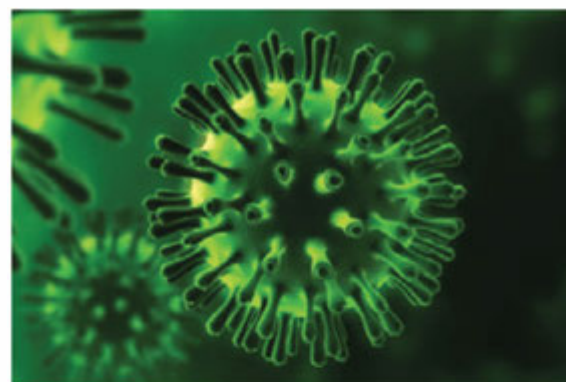
- Avian Influenza A, H9N2 (bird flu)
- Influenza A / B
- Aids Virus / HIV-1 Virus
- Herpes Simplex Type 1 & 2
- Hepatitis C & B
- Human and Canine Coronavirus
- Norovirus
- Covid-19

### Fungicidal

- Aspergillus niger
- Penicillium variabile
- Stachybotrys chartarum

### Bactericidal

- Staphylococcus aureus (MRSA) and epidermidis
- E-coli (ESBL and O157:H7)
- Enterococcus faecalis and faecium (VRE)
- E coli (O157:H7 and antibiotic resistant)
- Salmonella enterica
- Streptococcus pyogenes
- Streptococcus salivarius
- Staphylococcus aureus



# Education



## Schools Can Be a Hotbed of Bacteria

"According to **CDC (Centers for Disease Control and Prevention)** over 60 million school days are lost every year to just common cold and influenza virus"

## Why are children so good at circulating germs in the community?

Anyone with children will confirm to the fact that schools and childcare facilities are a hotbed for illness. The combination of immature immune systems and "germy" behavior allows germs to be freely passed from one child to the next.



If we were worried simply about the the common flu, it would be less of a concern, but with the rapid rise of the so called "**Super Bugs**" schools can quickly become the source of infection for the entire community.





Been logical and cost-effective to combat germs some of the common bacteria and viruses are taken care in one single process.

Avian Influenza A, H9N2 (bird flu)  
Influenza A / B  
Aids Virus / HIV-1Virus  
Herpes Simplex Type 1 & 2  
Hepatitis C & B  
Human and Canine Coronavirus  
Staphylococcus aureus (MRSA) and epidermidis  
E-coli (ESBL and O157:H7)  
Enterococcus faecalis and faecium (VRE)  
E coli (O157:H7 and antibiotic resistant)  
Salmonella enterica  
Streptococcus pyogenes  
Norovirus  
Covid-19



MDF-500 product decontamination are a powerful weapon to combat the epidemic rise of these preventable infections along with removing odor and foul smells, bed bugs, protection from mold and spores, etc

Using MDF-500, our crew can quickly, easily, and safely decontaminate classrooms, play areas, locker rooms, gyms and bathrooms. In addition, hall ways, elevators, food preparation stations, and most public areas.





## “Hospital Acquired Infections (HAI)”

According to a recent report from the CDC "Healthcare Associated Infections (HAIs) are the most preventable cause of hospital morbidity and mortality, kill over 100,000 patients and cost the US healthcare system over \$45 billion each year." This, coupled with decreasing reimbursements and new mandatory HAI reporting requirements, has put increased pressure on hospital administrators to look for cost-effective methods to control the HAI problem.





## Types OF HAI

- Hospital-acquired pneumonia
- Ventilator-associated pneumonia
- Urinary tract infection Gastroenteritis
- Puerperal fever



## Route

- Contact Transmission
- Droplet transmission
- Airborne transmission
- Common vehicle transmission
- Vector borne transmission



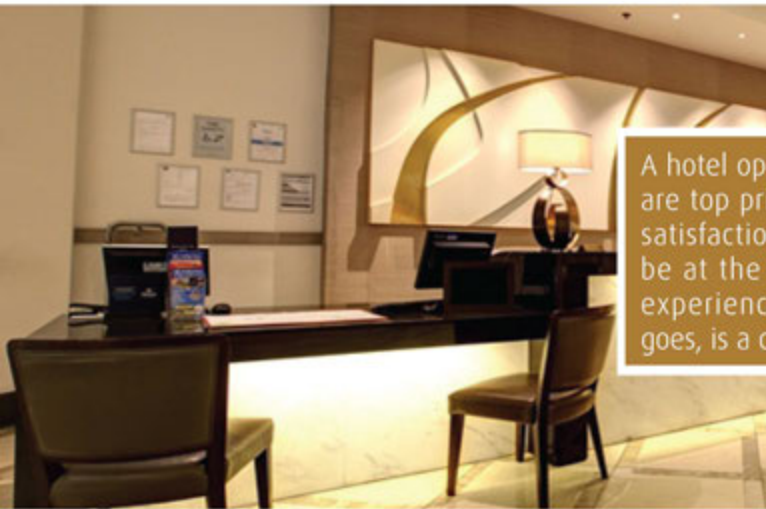
## Benefits of MDF-500

- Odor free environment
- Increase cleaning effectiveness while lowering operational costs
- Total sanitization of bacterial and viruses
- Activities from critical patients
- Protect the health of patients, staff, and physicians



# Hotels

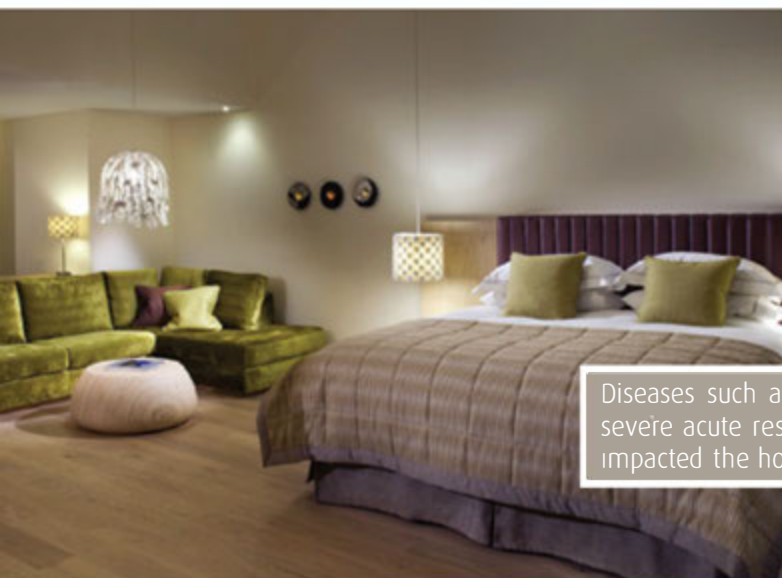
Is your **Hotel** having sick syndrome?



A hotel operator, the comfort, safety and satisfaction of your guests are top priorities. If increasing your average stays and your guest satisfaction rate are important to you, then housekeeping has to be at the top of your list as a manager or operator. The guest experience within each and every room, as far as cleanliness goes, is a critical factor in keeping guests coming back.



Most hotel rooms are cleaned but may not be sanitized. Housekeeping departments need to identify the "high-touch" areas in the hotel and focus their cleaning and sanitizing efforts in those areas to reduce guests' risk of illness. Items such as the remote control, light switches other communal objects tend to have the highest bacterial counts and implementation of effective sanitation methods is of utmost importance.



Diseases such as norovirus, Covid-19, influenza A virus, and severe acute respiratory syndrome (SARS) have significantly impacted the hospitality industry on a global scale

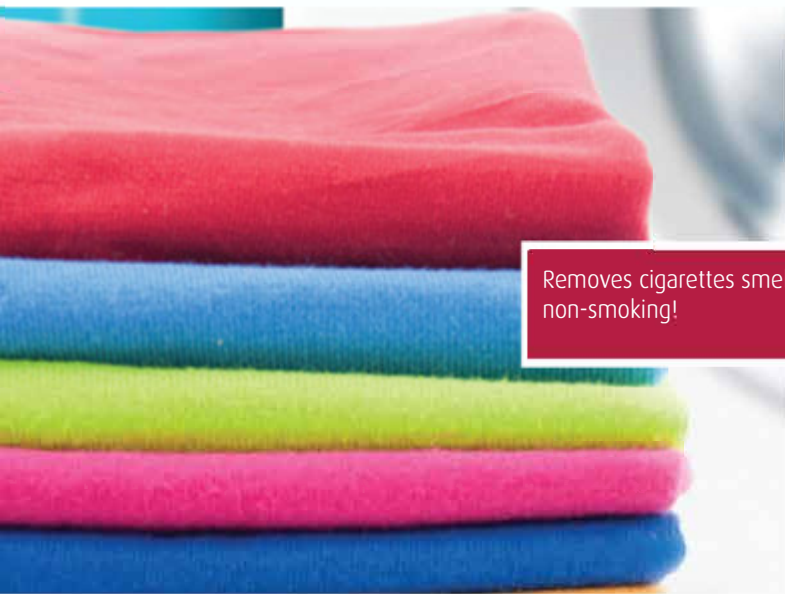
**MDF-500 Application**



# No Second Chances on First Impressions

## How Cleanliness Drives Repeat Business

Cleanliness, so the expression goes, is next to godliness, and while no expert would elevate the need for a tidy restaurant to the realm of spiritual enlightenment Did you know the parasites can also survive on infected objects like bed sheets, towels and toilet seats from hotels?



Removes cigarettes smell - Within 1 hour convert your smoking room to non-smoking!



Using MDF-500, our crew can quickly, easily, and safely decontaminate classrooms, play areas, locker rooms, gyms and bathrooms. In addition, hallways, elevators, food preparation stations, and most public areas can be decontaminated in minutes



# Buildings & Residence

## More Kinds of Bacteria Live In Your House Than in Your Yard

### Biodiversity Begins at Home

Some of the microbes in our homes may be harmful; they may cause diseases or allergic reactions.



#### The Fungi Among Us

Unlike bacteria, most of the fungi in your home come from outside. The types of fungi in your home mostly depend on the climate where you live.

Since nearly a third of the fungi found in household dust were potential allergens, the regional differences in household fungi could also explain regional differences in allergies.



#### Cats and Dogs

In fact, dogs were the most important factor in a home's microbial diversity.

Researchers found 56 genera of bacteria that are more common in homes with dogs, and another 24 genera that are more common in homes with cats.



#### Germs and Gender

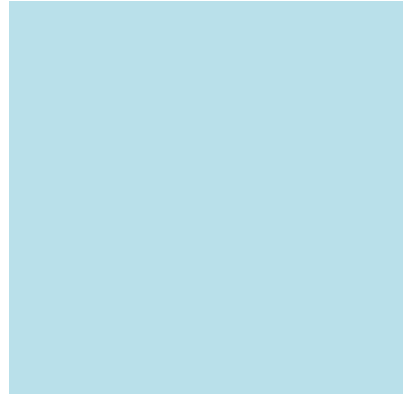
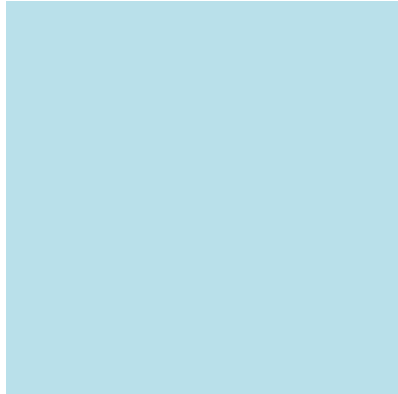
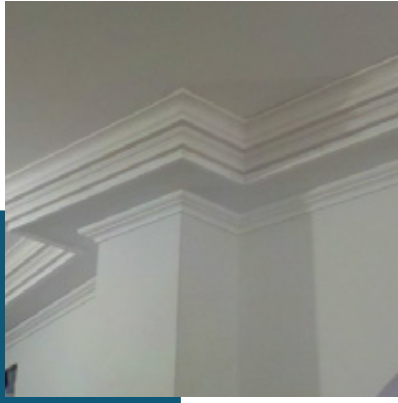
Humans inhabitants also contribute their share of bacteria to each house's microbial community through dry skin shedding and fecal bacteria in their dust.

Skin bacteria *Corynebacterium*, *Lactobacillus* a genus of bacteria that includes several of the species that make up micro biome.



## Get rid of all your bedbugs!

Bed Bugs are a known nuisance world-wide. The infestation of human parasites inhabits hotels, hospitals and dormitories. Bed bugs can cause severe skin irritation, psychological effects and allergic symptoms.



## Mold, dust mites, fungi, spores, and pollen Bioaerosols in the human environment

A healthy indoor environment is important to you and your family. This includes keeping the air free of biological contaminants, which can cause health problems. Scientists call these airborne contaminants Bioaerosols.

Bioaerosols are extremely small living organisms or fragments of living things suspended in the air. Dust mites, molds, fungi, spores, pollen, bacteria, viruses, amoebas, fragments of plant materials, and human and pet dander (skin which has been shed) are some examples. They cannot be seen without a magnifying glass or microscope.



## Bacterial Transfer in Workplace

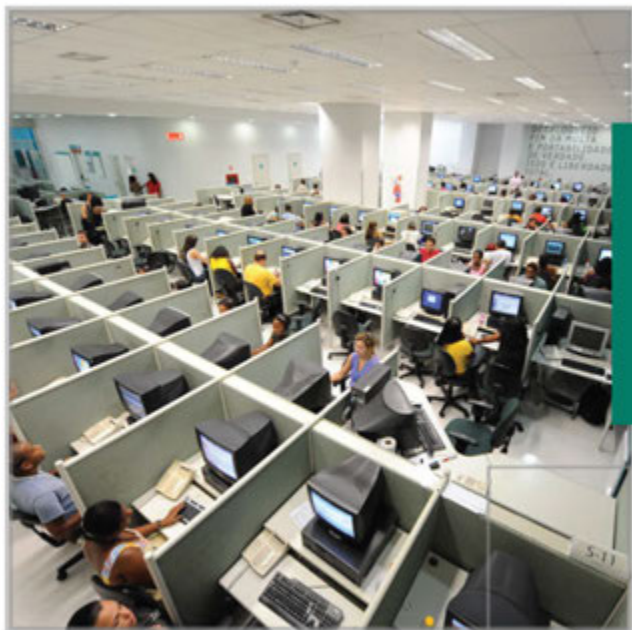
Did you know that every 60 seconds, a working adult touches as many as 30 objects which may be contaminated by bacteria or viruses causing infectious disease?



According to one recent workplace microbial survey, "desktop surfaces, computer keyboards, mouse and telephone receivers are more contaminated than restroom toilet seats."



## Occurs in just Two Hours



Using MDF-500, our crew can quickly, easily, and safely decontaminate Office areas, the computers and keyboards and all desk areas. In addition, hallways, elevators, food stations, and most public areas can be decontaminated in minutes

Additionally smoking rooms can be totally clean with a odor elimination of cigarettes smell



## Athletic Infections



From high end fitness centers to high school locker rooms, a combination of heat, sweat and shared equipment creates an ideal breeding ground for germs, bacteria and viruses. Close quarters combined with general poor hygiene practices make athletes particularly vulnerable to contracting skin diseases such as MRSA and Herpes. These infections spread easily as a result of direct contact in competition and the sports environment. The incidence of skin-related infectious diseases has been estimated at 8.5% of high school sports-related conditions and injuries and 20.9% of college sports-related conditions and injuries



The National Athletic Training Association (NATA), an organization comprised of mostly high school and college athletic trainers across the US, conducts annual studies on athletic facility-related infections. In their 2009 study, they found nearly 76% of the 650 responding athletic programs had reported AFRIs. That number is up from 73% in 2008 and 67% in 2007.

The same study found 49% of those cases were with contagious pathogens, such as methicillin-resistant staph aureus (MRSA). The common practice of post-infection treatment is no longer the safest solution.





## Facilities Related (AFRI)

In sports the susceptibility of athletes to infectious diseases is very high. Athletes with infectious diseases may be at risk for severe complications if they continue their physical activity. Finally they may have transmittable diseases, so other people including sports competitors, trainers and even audiences could be at risk. Transmission of infectious diseases in sports usually occurs via direct contacts, fecal oral routs, common source exposure and airborne or droplets



Using MDF-500, our crew can quickly, easily, and safely decontaminate gyms areas, locker rooms, bathrooms, indoor, play areas, Sauna & spa room, etc



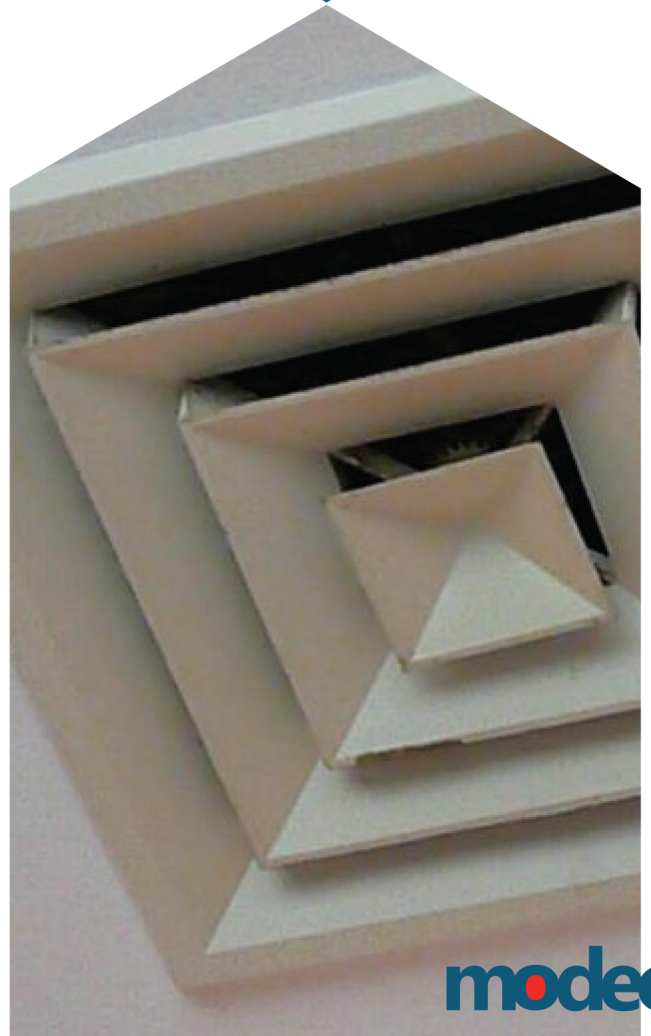
## Right Now, You're Breathing A Potentially Dangerous Substance



Microorganisms breakdown into minute organic fragments collectively known as Macromolecular Organic Dust (MOD)

MOD compromises building air quality and can lead to a range of health complaints including allergies and respiratory complaints along with low level irritations, headache and fatigue. AT AGI we offer you our services in analyzing the cause of allergies and health discomfort by measuring the quality of the air you breathe

The build up of bacteria and fungi that inhabit air filters and ductwork with in air conditioning systems are a major source of indoor air pollution. These microorganisms breakdown into minute organic fragments collectively known as Macromolecular Organic Dust (MOD)





# Transport

## There's Twice as Much Hazardous Bacteria on

Buses, Taxis, Trains and other mode of transport heads the list of bacteria worries ahead of Flu Season, Microban Research Shows

As flu season gets underway, public transport such as buses, trains and subway trains head the list of places where people worry about catching viruses and infections, according to new research by Microban.



49% of 1,000 people surveyed were "concerned" or "very concerned" about levels of bacteria on buses, 46% on trains, 45% on Subway trains, 43% on planes, 42% on coaches and 40% in taxis.

**MDF-500 Application**



## Public Transport Seats dirtier than Toilets

Scientists from Weill Cornell Medical College wanted to find out exactly what was lurking on New York City's subways, so they spent 18 months gathering DNA samples throughout NYC subway stations (a dream job, right?). The results of the study were, well, gross.

The researchers identified 637 known bacterial, viral, fungal and animal species,



Stay Healthy by Cleaning off the Bacteria on Seats



# Animals Sheds



Disinfectants vary considerably in their activity against the assorted germs—bacteria, viruses, fungi, and protozoa—associated with livestock.

Keep Horses Healthy with Biosecurity and Barn Disinfection organisms such as Salmonella, even though the infectious disease it causes can spread quickly through a herd, wreaking havoc on a horse farm.



MDF-500 Application



Sometimes visit to the Zoos, Aquarium and other Animal holding areas has a bad experiences due to bad smell or odor coming from certain areas due to animal waste, food, etc. Unpleasant to bear it also facilitates bacteria and viruses which can transmit to people visiting the premises specially in the closed environment

MDF-500 when sprayed can facilitate removing of all the odor plus it destroys all the bacteria plus viruses and having the facilities clean





# Odor

## Is it bad?

MDF-500 removes  
any  
permanently within

**30** minutes



Contamination of meat products by microorganisms such as airborne bacteria and mold is a major economic problem in the meat industry. In the past it was thought that food products were contaminated when they came in contact with contaminated surfaces, but now it is known that additional product contamination occurs from contact with airborne bacteria.



Total solution for sanitizing of fish selling and cutting area after working hours.

## MDF-500 Application

## The bugs breeding in your bins

Harmful bacteria, viruses and food related molds are left behind. In addition to an offensive odor, a dirty bin attracts unwanted pests and is a breeding ground for insects such as ants and flies.

Today there is a growing awareness of the necessity of maintaining a clean, sanitized and deodorized trash bin.



## Blocked drains make home environment dirty.

Dirty areas are perfect breeding grounds for mosquitoes and other disease causing insects. If not cleaned quickly, these can even cause skin infections, pests, bacteria, germs, mosquitoes, virus allergies and other harmful diseases. Millions of individuals die everyday because of harmful diseases like malaria etc which has now become a main challenge in the health sector.



## Smoke Smell

Eliminates odor including smoke and chemical pollutants. MDF-500 will remove any unwanted odours from your property.



# Mold



## Got Mold?

Mold loves the high humidity and hot weather. As molds grow, spores can be released into the air and inhaled causing sickness, asthma, pneumonia & weakening of the immune system.

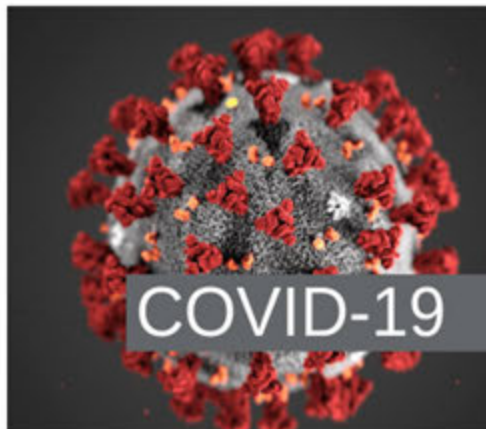
MDF-500 eliminates all molds from homes, buildings, office.

Protect yourself and the people around you with MDF-500



**MDF-500 Application**

# Eradicate Pandemic Diseases like



## Product Comparisons

	MDF - 500	Disinfectant Solution	Botanical Disinfectant	Concentrated Quaternary	Disinfectant Fungicide	Disinfectant Spray Plus	
<b>Class</b>	Quat	Phenolic	Phenolic	Quat	Quat	Phenolic	Quat
<b>Health Risk</b>	0	1	0	2	3	1	3
<b>1 Gallon Coverage</b>	2,500	1,000 - 1,200	TBD	TBD	TBD	TBD	TBD
<b>Packaging</b>	2 Gallons Mix	1 Gallons RTU	Concentrate	Concentrate	Concentrate	1 Gallons RTU	Concentrate
<b>Personal Protective Equipment Spray Application</b>	None	None	None	Gloves	Chemical Goggles, face shield, working clothing	Gloves, respirator and eye goggles	Chemical resistant gloves, goggles, protective clothing & Ventilation
<b>Scented</b>	No	Yes	Yes	Yes	Yes	Yes	Yes





**modec** inc.

Modec's Decon Formula  
(MDF) is Commercially  
Manufactured using the  
Formula Licensed by



Sandia  
National  
Laboratories

