

## **Rev 5-2**

### **Mould & bacteria risk reduction decontamination**

This paper shows alternatives to professional mould remediation. I must state at the outset that as a co-author to several international & British technical consensus documents on professional mould remediation, I have been reticent to provide a solution at a lower level/standard of remediation. This paper is not a replacement for professional mould remediation but does provide an alternative to what is generally seen as prohibitive costs.

I stress if money is available the correct procedures should always be followed but the results from the following protocols should provide a reduction of health hazards at an affordable cost.

#### **The issues of Biological Exposure and Health**



A water damaged property may be expected to see bio amplification of Gram negative and positive bacteria, Endotoxins, and of course various species of mould. It is accepted that dead bio fragments are often more of a health risk than whole spores. (ref WHO). It is generally accepted that continuing exposure to the triggers is unlikely to see health improvements from any form of medical treatment. Much like putting a hand back in a fire after burn treatment. The following may provide a respite of exposure.

#### **Professional Mould Remediation**

The following two mould removal photos show professional remediation following international standards. They show intrusive investigation to identify or reveal sources and reservoirs of mould and biological agents. The projects required the properties to be gutted, decontaminated, and then restored.

The clients (insurance companies) required guarantees that the home was decontaminated to the best possible level. Despite walls, ceilings and floor screed removal there were and cannot be guarantees in either property that occupants wouldn't react when re entering the completed home.



Both properties were gutted, and occupiers were re located for 8 months during works.

### Objectives of Professional Mould Removal and Remediation

- Identify mould causation issues
- Identify mould presence and hidden reservoirs
- Dry affected areas or identify construction defect
- Remove and decontaminate surfaces and air
- Verify all results
- Building Forensics undertook both contracts for insurers with each costing over £100,000 including alternative accommodation and refurbishment

### International guidance on medically required decontamination/remediation

The attached consensus document was written by leading Indoor Environmental Hygienists in USA and working with leading mould practitioners including Dr shoemaker of [www.Survivingmold.com](http://www.Survivingmold.com). Jeff Charlton is listed as co-author of this consensus group and is the inventor of the following economic alternative for mould control and risk reduction.

For a better understanding of the technical and practical difficulties in medically safe remediation please read the consensus document in Free help section.

### Economic mould control and health risk reduction

**This process is primarily aimed at the reduction of exposure to health hazards and risk factors.**

In the following process our goal is to control the environment, thereby reducing exposure to water damage related pathogens.

### Target contaminants

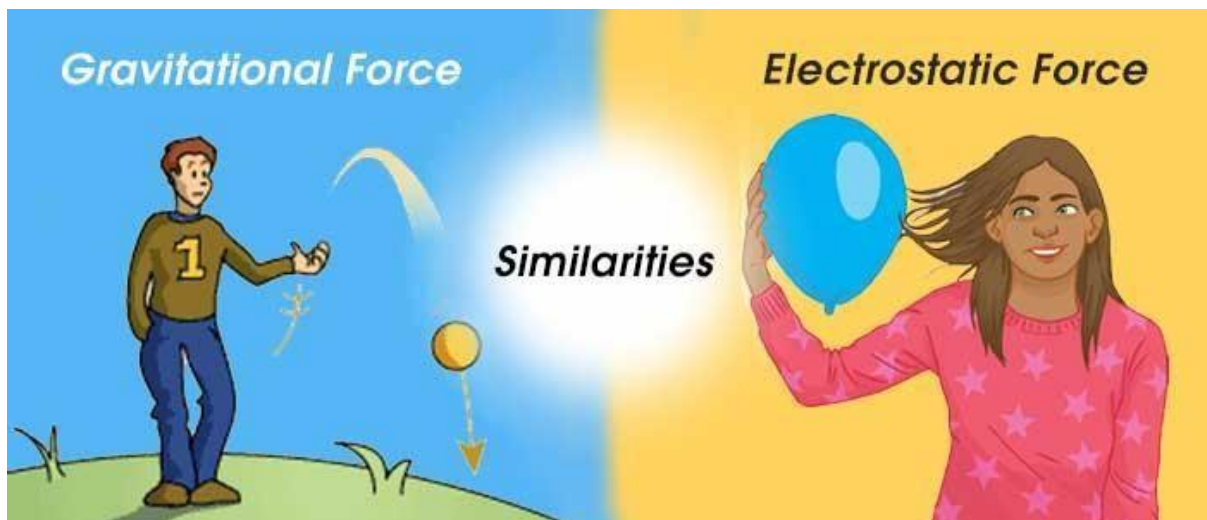
- Gram Positive and Negative Bacteria
- Endotoxins

- Mycotoxins
- Mould Spores and fragments

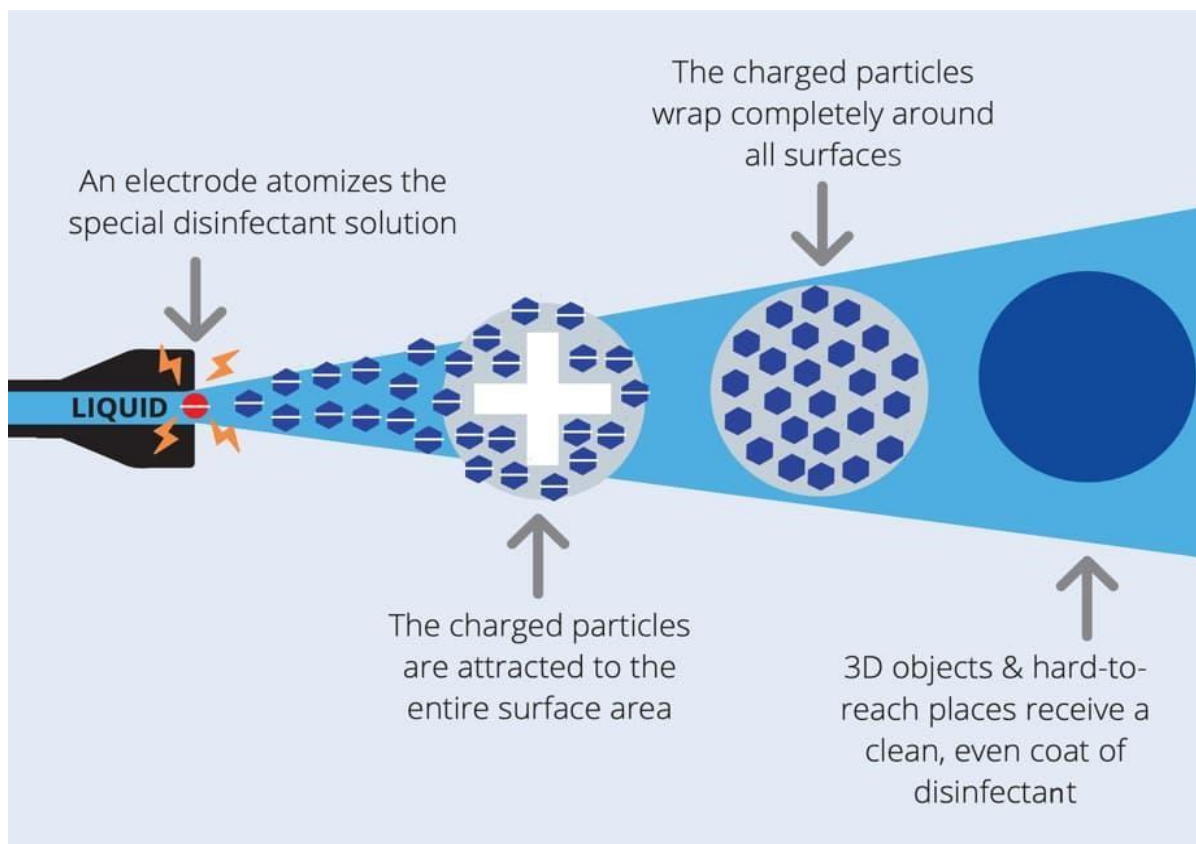
### Procedure

- Remove accessible visible mould using a thixotropic solution applied locally by low pressure spray. The Thixotropic nature encapsulates spores and fragments to reduce likelihood of release during cleaning.
- Fill the affected areas with a Bio Aerosol oxidising disinfecting agent resulting in the oxidation or denaturing of contaminants on surfaces and air, thereby reducing exposure risk.
- Fill the air with a Bio Aerosol which is electrostatically charged to bring down and bind contaminants.
- Apply of a cationic Biostat dry film to lock in residue contamination which also provides surface protection.
- Particle counts pre and post treatment to prove efficacy.
- Use pre and post treatment spore counts (if required and at extra cost).

We use chemistry and physics to produce chemicals and application systems that cover and bind to surfaces to offer the best protection.



Here we see the two different forms of natural force. Unlike most other chemicals our treatment is attracted to all surfaces not just the floor.



In this diagram we show how our disinfecting and the biostatic misting deposits on all surfaces to provide even greater protection.

Disinfection Type	Electrostatic spray	Fogging	UV disinfection
Wet or dry	Dry	Wet	Dry
Disinfection period	1-5 minutes	30 -40 mins	30+ mins

**Note UV light disinfection requires direct light exposure and only areas exposed to the light are disinfected.**

The biocidal microbe shield we apply is unique anti-microbial technology which has been used and tested for over 30 years and is an accredited BIOCIDE with the Environmental Protection Agency and comparable regulatory bodies around the world. This technology has been used in hospitals for the wound area of surgical drapes etc.

This is not a onetime kill as often stated with bleach, but a continuing ongoing bacteriostat and mould control product.

## Medical Note

Effectiveness of medical treatment for symptoms associated with mould, chemical inflammagens, and bacteria should initially focus on the removal of the triggers and source of moisture eliminated.

It is unlikely that medical treatment will be as effective as possible if there is a continuing exposure, therefore some form of decontamination and exposure reduction must be seen as essential and of course beneficial.

## Typical action and control results

The Biostatic film is carried by a silane type product, which chemically bonds to all surfaces and provides long lasting protection against the following moulds and bacteria:

### Mould/Fungi protection

Aspergillus niger  
Mucor sp.  
Aspergillus fumigatus  
Tricophyton mentagrophytes  
Aspergillus versicolor  
Tricophyton interdigitalie  
Aspergillus flavus  
Trichoderma flavus  
Aspergillus terreus  
Chaetomium globusum  
Penicillium chrysogenum  
Rhizopus nigricans  
Penicillium albicans  
Cladosporium herbarum  
Penicillium citrinum  
Aureobasidium pullulans  
Penicillium elegans  
Fusarium nigrum  
Penicillium funiculosum  
Fusarium solani  
Penicillium humicola  
Gliocladium roseum  
Penicillium notatum  
Oospora lactis  
Penicillium variabile  
Stachybotrys atra

### Algae

Oscillatoria borneti LB143  
Schedesmus quadricauda  
Anabaena cylindrica B-1446-1C  
Gonium sp. LB 9c



Selenastrum gracile B-325

Volvox sp. LB 9

Pleurococcus sp. LB11

Chlorella vulgaris

### **Yeast**

Saccharomyces cerevisiae Candida albicans

### **Bacteria**

Micrococcus sp. Aspergillus niger

Mycobacterium smegmatis Mucor sp.

Staphylococcus epidermidis1 Aspergillus fumigatus

Mycobacterium tuberculosis Tricophyton mentagrophytes

Enterobacter agglomerans1 Aspergillus versicolor

Brucella canis

Tricophyton interdigitalis

Acinetobacter calcoaceticus1 Aspergillus flavus

Brucella abortus Trichoderma flavus

Staphylococcus aureus (pigmented)1 Aspergillus terreus

Brucella suis Chaetomium globosum

Staphylococcus aureus (non-pigmented)1 Penicillium chrysogenum

Streptococcus mutans Rhizopus nigricans

Klebsiella pneumoniae ATCC 4352 Penicillium albicans

Bacillus subtilis Cladosporium herbarum

Pseudomonas aeruginosa Penicillium citrinum

Bacillus cereus Aureobasidium pullulans

Pseudomonas aeruginosa1 Penicillium elegans

Clostridium perfringens Fusarium nigrum

Pseudomonas aeruginosa PDR-10 Penicillium funiculosum

Haemophilus influenzae Fusarium solani

Streptococcus faecalis Penicillium humicola

Haemophilus suis Gliocladium roseum

Escherichia coli ATCC 23266 Penicillium notatum

Lactobacillus casei Oospora lactis

Escherichia coli1 Penicillium variabile

Leuconostoc lactis Stachybotrys atra

Proteus mirabilis Algae

Listeria monocytogenes Oscillatoria borneti LB143

Proteus mirabilis1 Schenedesmus quadricauda

Propionibacterium acnes Anabaena cylindrica B-1446-1C

Citrobacter diversus1 Gonium sp. LB 9c

Proteus vulgaris Selenastrum gracile B-325

Salmonella typhosa Volvox sp. LB 9

Pseudomonas cepacia Pleurococcus sp. LB11

Salmonella choleraesuis Chlorella vulgaris

Pseudomonas fluorescens Yeast

Corynebacterium Boris  
Saccharomyces cerevisiae  
Xanthomonas campestris  
Candida albicans  
Vancomycin Resistant enterococci  
Methicillin Resistant Staphylococcus aureus (

### **Benefits of this protocol**

This treatment usually completed in a day, provides almost instant exposure reduction. Surfaces are dry within an hour or so and fragments and spores are generally locked in. Air particle counts confirm success as compared to pre and post treatment levels.

This protocol is not designed as a substitute for professional remediation and clients are advised to invest in a professional inspection. The clear benefits are however immediate, and current exposure risks will be substantially reduced or eliminated and future growth potential will be limited.

### **Guarantees**

- We use biocide and disinfection products with internationally known and recognised capabilities to achieve our objectives.
- We use application technology known to provide the coverage and homogenous protection required.
- We guarantee we will prove major reduction in exposure.
- Our claims are supported by various public body attestations including hospitals.
- Results are verified by compliance with British Standards of mould measurement and reduction in air particle counts as identified with a 6channel particle counter
- Nobody in the world can categorically state your health will improve after any form of decontamination, whatever the cost.

## Cost & result Comparisons

Comparisons	Professional Decontamination	Building Forensics process
<b>Cost</b>	£100,000 plus	Less than £2000
Time frame	6 months plus	Less than 1 day
Long term protection	No	Yes
Active control	No	Yes
Removal of contaminants	Yes	Part only but locked down
Removal of all contaminants	Unknown	Unknown
Reduction of exposure	Yes	Yes
Decontamination guarantee	No	No
Disposal of all contents	Usually,	No
Methodology	Intrusive investigation and exposure of all possible water damage and reservoirs	Not required as system is a control process, but some continuing but limited leakage may occur

## Notes

- According to Institute of Medicine there can never be guarantees of successful decontamination.
- Success is considered when occupants no longer react to the building environment.
- Locked down refers to surface electrostatic attraction thereby reducing airborne inhalation (exposure risk).
- There is no alternative to professional decontamination and severely immune compromised clients may have to consider this and weigh benefits against cost issues.
- Following the risk control process and application of biostat, mould cannot re grow if moisture is controlled