DISASTER
RESTORATION SOLUTIONS

actichem™

Mould Removal

Contractors Edition V3

FIRE | FLOOD | **MOULD** | TRAUMA

Mould

The silent, indoor air-quality killer

What is Mould?

Mould is a term used to refer to fungi that grow in the form of multicellular thread-like structures called hyphae. Up to date nearly 70,000 species of fungi have been identified with the total number thought to exceed 1,5 million. The most common outdoor mould is the Cladosporium spore with indoor mould types being dominated by several varieties including aspergillus and penicillium. Moulds are typically associated with negative health effects and spoilage of host materials, however many moulds are useful and play an important role in biodegradation or in the production of various foods, beverages, antibiotics and enzymes.

Health effects caused by Mould

The health hazards of moulds are often misunderstood. The most common response to mould is an allergic reaction. Moulds themselves are seldom toxic however many moulds produce airborne mycotoxins which when inhaled or ingested can cause severe allergic reactions such as respiratory irritations, nausea, dizziness and headaches.

The health effects are dramatically pronounced indoors where conditions are often conducive to mould growth which is then accentuated by the restriction of free air movement and air change. So, when mould grows indoors, the number of mould spores and fragments is usually higher than it is outdoors and contribute to poor indoor air quality (IAQ).

Conditions in which Mould grows

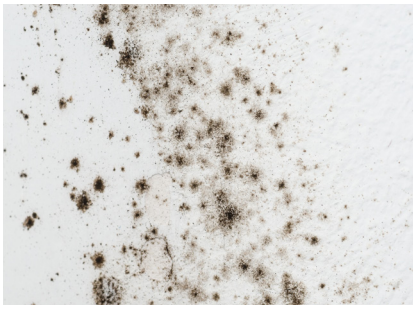
Mould, by definition, requires moisture, warmth and organic matter to germinate and grow. Many mould spores can lie dormant until these conditions eventuate. Mould germination will often occur in as little as 6 hours. Dampness occurring in building materials, carpet, fabrics, etc for even half a day can dramatically raise the risk of biological growth. Poor ventilation contributes to higher humidity levels and leads to condensation, which also facilities and promotes mould growth and infestation.

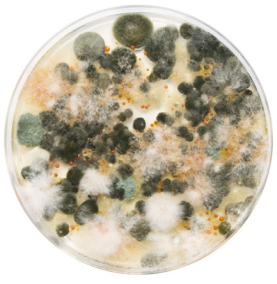
Considering these growth conditions, it is easy to understand that the vast majority of mould grows in porous substrates where moisture is restricted from quick evaporation (eg wood, sandstone, concrete, plasterboard)

Where is Mould found?

Mould is mostly found in porous building materials where it often appears as a dark stain and comes in a variety of colours. A musty smell is an indication of microbial growth even when there is no visible growth. Mould is often easily identified by visual inspection; however, many other areas may also be affected. An Indoor Environmental Professional will use moisture meter readings and thermal imaging equipment in conjunction with mould sampling to accurately identify Mould colony growth.

Mould will grow anywhere conditions are favourable, especially where moisture was or is prevalent. These areas can also include roof cavities and sub-floor areas where air movement is restricted.





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Removing Mould From Target Surfaces

Surface and Substrate Considerations during Mould Remediation

Plasterboard

Painted plasterboard will sustain mould growth. If mould growth is limited, plasterboard is best cleaned and remediated using Actichem **Biosan II or Actichem's Responsibly Green Mould Remover.** Where severe mould colonies are encountered, the cellulose portion of the plasterboard will be spoiled and must be removed. This will, in any case, be necessitated to access the internal wall structure which will be required for this level of mould contamination.

Structural Timber

This includes wall studs, rafters, plywood, particle-board and other timber with an unfinished surface. Mechanical removal has been widely used for these surfaces, however deep penetration biocides such as **Biosan II, Actichem Responsibly Green Mould Remover or Mould Exterminator** have proved extremely effective with significantly less structural damage and disruption. Timber can be damaged by mould and display increased porosity following remediation.

Carpet & Textiles

Minor to medium mould growth on synthetic carpets can mostly be remediated using **Biosan II or Actichem's Responsibly Green Mould Remover.** Professional opinion is advised when dealing with natural fibres and/or carpets with jute backing. Wool can be permanently spoiled by mould as can be fibres and backing containing cellulose which includes cotton, jute and canvas. Where carpets have more than surface mould, the carpet must be lifted, the underlay discarded and the front and back and floor base treated.

Concrete & Masonry

These building materials do not create favourable mould growing environments except for the fact that they are often porous. Where there is moist conditions with limited sunlight, mould will grow readily. These mould infestations can be effectively removed using Actichem **Mould Exterminator** or if inside, they should be remediated using **Biosan II or Actichem's Responsibly Green Mould Remover.** Water blasting is often used but this technique does not kill the mould and regrowth occurs more rapidly.

Finished Timber

Finished timber includes wooden floorboards, doors and frames, window frames and furniture. Wood of this nature is typically sealed and hence porosity is very low. Where surface mould growth is present, they are best washed down with a solution of **Biosan II or Actichem's Responsibly Green Mould Remover.** If severe moisture ingress has occurred (eg flooding) some substrates may require removal and/or sanding down to restore the wood appearance caused by water damage.

Natural Stone

Fine stone (marble, limestone, travertine, granite) should be cleaned down and treated with **Biosan II or Mould Exterminator** can also be used with great effect, especially if staining is present. Construction stone (sandstone, bluestone) should be treated in the same manner as masonry.

Tiles and Glass

Ceramic and porcelain tiles and glass do not support mould growth due to their very low porosity. Where mould is deposited on these surfaces treat with a solution of **Biosan II, Actichem Responsibly Green Mould Remover or Mould Exterminator.**

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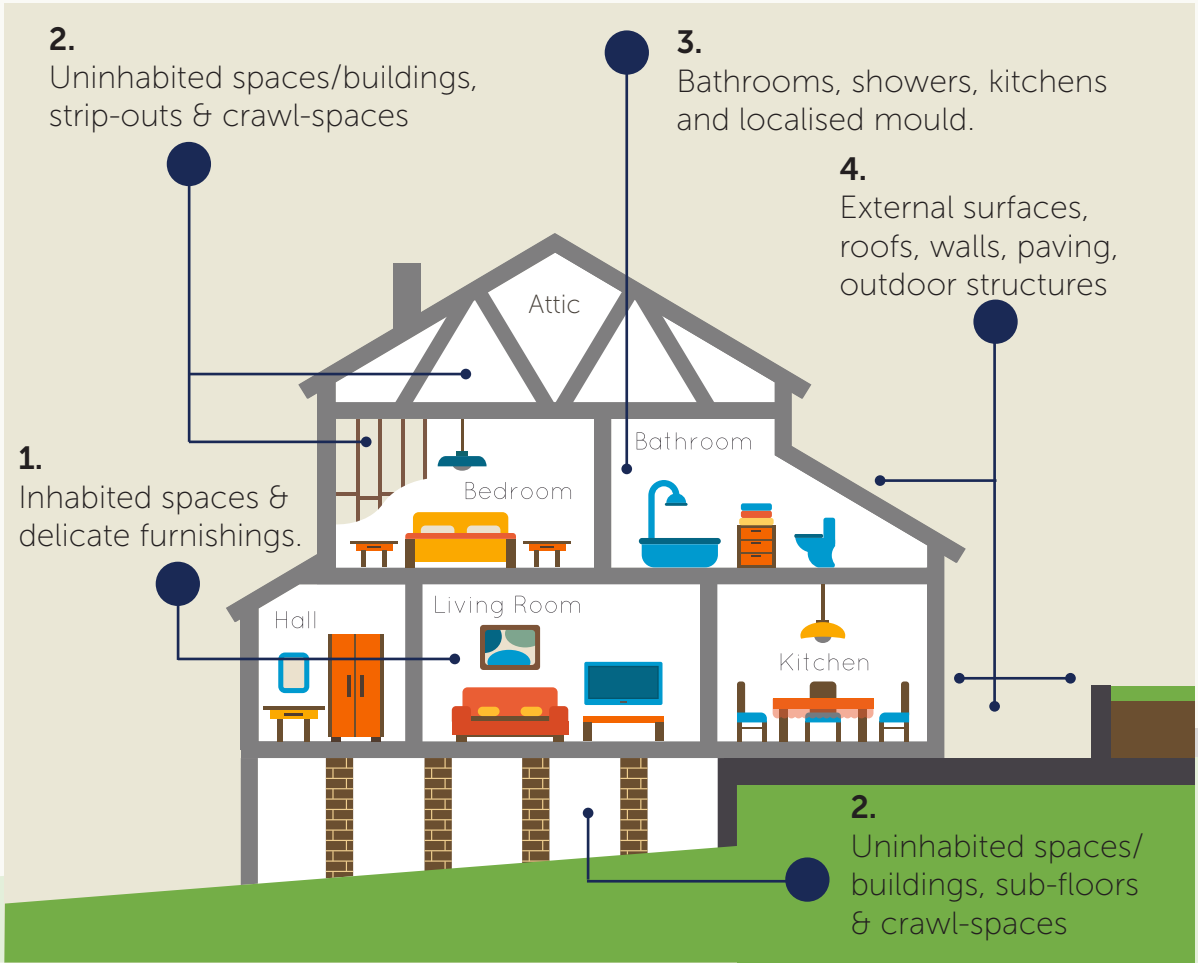
Mould Removal Remediation Principals

Common locations where mould is found



Important Points to Consider

Take notice of where the mould is. Some surfaces or/and adjoining surfaces may be damaged by some mould removal products. And living areas shouldn't be treated with chemicals which pose a health risk to the occupants.

Remember that mould will grow wherever moisture or moisture laden air has been. This includes many "hidden" areas such as sub-floors, roof spaces and inside cupboards.

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Mould Removal Remediation Principals

1. Inhabited Spaces & Internal Surfaces

Inhabited spaces or/and internal surfaces are the most sensitive substrates to remove mould from. Many surfaces can be damaged by the mould itself. You must also consider for the occupants, the adjoining substrates and the surrounds and how they may be affected by the mould removal process and chemicals used. The key goal is to restore a healthy indoor environment. Environmental Hygiene Specialists and swab testing may be required.

2. Bathrooms, Showers and Localised Mould

Bathroom and shower surfaces have high propensity for mould growth, given the warm, moist conditions. Surfaces are typically more resilient and more aggressive mould removal chemistry can be used. Localised mould growth in living areas is defined as isolated, small dinner plate size outbreaks on walls, ceiling or carpet caused by an isolated happening e.g. a spill or a leaking fridge, etc.

3. Uninhabited Spaces

Uninhabited spaces include unoccupied buildings, strip-outs, sub-floors, crawl spaces and attics. They are often the scene of severe mould situations. Inaccessible areas are one of the largest challenges. Collateral damage by the mould removal process is much lower and more aggressive chemistry and processes can be justified. The key goal in removing mould from uninhabited spaces is mostly to restore a healthy environment. Environmental Hygiene Specialists and swab testing may be required.

4. External Surfaces

External surfaces include external walling, retaining walls, walkways and driveways constructed from natural stone, concrete, masonry or timber. The key goal in removing mould in these areas is aesthetic. The potential for collateral damage to other surfaces is much lower and more aggressive chemistry and processes can be justified. However, special consideration must be given to adjoining vegetation and the final destination of run-off.

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Mould Removal Chemistry

Mould Exterminator & Mould Remover

Mould Exterminator

External & Uninhabited Spaces

Dilution	Ready-to-use
Chemistry	Activated chlorine
Odour	Mild chlorine
Safety	Skin & eye irritant

Stand-out Features

- Unique activated chlorine technology
- Powerful mouldicide activity
- Unparalleled mould stain removal
- Super wetting feature

Possibly the world's best mould removal solution. Mould Exterminator employs a chlorine accelerator to ensure a total kill of the toughest moulds. This is blended with a combination of super-wetting agents and emulsifiers to guarantee ultimate performance on porous and dirty surfaces. Mould Exterminator can be sprayed or applied using a brush, spray system.

An unbeatable choice for mould remediation of uninhabited spaces, strip outs and external surfaces.

Mould Remover

Internal & inhabited Spaces

Dilution	Ready-to-use
Chemistry	Hydrogen Peroxide
Odour	None
Safety	Skin & eye irritant

Stand-out Features

- Fast, effective mouldicide & biocide action
- Rapid fizzing mould indicator
- Amazing mould stain removal
- GECA Certified, Eco-friendly

Mould Remover's unique peroxide formula, provides consistent, reliable results in mould removal every time. It's aggressive reaction with mould can be seen by the rapid fizzing when it contacts mould as it eradicates the mould spores and lifts the mould out of porous surfaces.
Mould Remover shows rapid and effective action when tested to EN13624:2013(E)

Ideal for use on/or around delicate surfaces such as carpet, furniture and painted walls.

Mould Exterminator and Mould Remover are also powerful disinfectants and will rapidly destroy bacteria, viruses and fungi. Mould Remover is also sold as **Percide IC** which is TGA listed as a hospital grade disinfectant with numerous pathogen kill claims.

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Mould Removal Chemistry

Biosan II & Forest Fresh

Biosan II

Mould & Decontamination

Dilution	1:16 - 1:32
Chemistry	Quaternary Ammonium Chloride
Odour	Mild, fresh lemon
Safety	Non-hazardous in use

Stand-out Features

- Powerful biocidal & mouldicidal action
- Extremely economical in use
- Super penetrating action
- Used by Restoration Professionals for mould remediation & bio-decontamination

Biosan II combines latest generation quaternary ammonium compound chemistry with potentiators and super wetting technology giving it unparelled performance in mould and biocontamination restoration. Biosan II is safe on virtually all water-cleanable surfaces.
A TGA listed Hospital Grade Disinfectant

Ideal for:

- Initial washdown to make the site safer.
- Kill visible and invisible mould over large areas.
- Low odour and non-bleaching. Good for indoor use.
- Apply and leave on "non-touch point" surfaces (eg. stud work, attics, etc) for extended protection.

Use **Mould Remover** for stubborn mould stain removal.

GECA CERTIFIED

Forest Fresh

Decontamination & Odour Control

Dilution	1:25
Chemistry	Quaternary Ammonium Chloride
Odour	Fresh Eucalyptus Pine
Safety	Non-hazardous in use

Stand-out Features

- Powerful biocidal action
- Extremely economical in use
- Super penetrating action
- GECA Certified, Eco-friendly.

Forest Fresh is formulated with quaternary ammonium compound chemistry with high performance odour neutralisers. All specially chosen for a safe eco-friendly solution. Forest Fresh is safe on virtually all water-cleanable surfaces.
A TGA listed Commercial Grade Disinfectant

Ideal for:

- Initial washdown to make the site safer.
- Commercial & DIY level clean-ups.
- Disinfect, neutralise mal-odours and re-odourise for a fresh atmosphere.
- Ideal where wash water run-off is uncontrolled or may enter waterways.

Use **Mould Remover** for stubborn mould stain removal.

Inhabited Areas

Treatment for indoor and occupied buildings

Treatment Directions

Ensure that you have read and understood the safety data sheet and technical information for all chemical products used. This includes a thorough understanding of required personal protective equipment required, safe chemical use, directions for use and the limitations and capabilities of each product.
Severe mould, flood and sewage situations should only be treated by a trained remediation professional.

Directions:

1. Scope out the area to be treated. Remove items that may be damaged by the process and set-up any protective sheeting to protect adjoining and surrounding surfaces (eg carpets, benchtops, furniture, etc). Turn off mechanical ventilation systems such as air-conditioning systems and fans. Remove all spoiled material which is to be discarded.
2. Dry vacuuming will assist mould removal, but only if your vacuum is fitted with a HEPA filter. Standard dry vacuuming may spread mould spores through the atmosphere.
3. Prepare solution to be used.
   Standard mould removal
   Mould Remover – use as is. No further dilution required.
   Large area wash-down and mould removal
   Biosan II – add 65ml per litre of water (1:16).
4. Apply solution to the affected area. Ensure all areas and surfaces come into contact with the solution. Application is normally by means of a course spray.
5. Agitate wherever possible to promote contact and penetration into porous substrates.
6. Allow a minimum of 10 minutes dwell time.
7. Agitate again and rinse thoroughly with clean water.
8. For surfaces with high porosity and/or surfaces which are moderately to severely soiled, repeat steps 3 to 7 to ensure complete mould eradication.

- For large area mould remediation, the **Biosan II** solution can be used. Then use **Mould Remover** to remove any residual staining or discolouration.
- Clean all washing equipment used in a fresh solution of **Mould Remover or Biosan II**.
- *Washing down surfaces affected by flood water and moisture with **Biosan II or Forest Fresh** will help prevent mould growth and disinfect the area of harmful bacteria.*

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Uninhabited Areas

Treatment for indoor and occupied buildings

Treatment Directions

Ensure that you have read and understood the safety data sheet and technical information for all chemical products used. This includes a thorough understanding of required personal protective equipment required, safe chemical use, directions for use and the limitations and capabilities of each product.

Severe mould, flood and sewage situations should only be treated by a trained remediation professional.

Directions:

1. Scope out the area to be treated. Remove items that may be damaged by the process and set-up any protective sheeting to protect adjoining and surrounding surfaces. Turn off mechanical ventilation systems such as air-conditioning systems and fans. Remove all spoiled material which is to be discarded.
2. Dry vacuuming will assist mould removal, but only if your vacuum is fitted with a HEPA filter. Standard dry vacuuming may spread mould spores through the atmosphere.
3. Remove all mould spoiled material which is to be disposed of (eg. plasterboard, carpet, underlay, etc) and any other material required to gain access to mould contamination.
4. Prepare solution to be used.

   Standard mould removal
   Mould Exterminator – No dilution required
   Fogging Treatment
   Biosan II - add 65ml per litre of water (1:16)
   Large area wash-down
   Biosan II – add 65ml per litre of water (1:16).

5. Apply solution to the affected area. Ensure all areas and surfaces come into contact with the solution. Application in accessible areas is best affected by a course spray. Inaccessible areas (some attics and sub-floors) should be treated using a wet fogging machine.
6. Agitate wherever possible to promote contact and penetration into porous substrates.
7. Allow a minimum of 10 minutes dwell time.
8. Agitate again and rinse thoroughly with clean water where practical to do so.
9. For surfaces with high porosity and/or surfaces which are moderately to severely soiled, repeat steps 5 to 9 to ensure complete mould eradication.

- Structural surfaces such as wall studs, floorboards under carpet, ceiling cavities, etc can be post sprayed with **Biosan II** solution and left as residual. This provides a biocidal residual which will further inhibit future mould growth.
- Clean all washing equipment used in a fresh solution of **Mould Exterminator or Biosan II** and rinse in clean water.

Bathrooms & Isolated Outbreaks

Treatment for showers, bathrooms and localised mould

Treatment Directions

On all projects, even small projects, be sure to wear all recommended personal protective equipment. Ensure that you have read and understood the safety data sheet and technical information for all chemical products used. This includes a thorough understanding of directions for use and the limitations and capabilities of each product.

These treatment directions assume that the host surface is not damaged by the mould.

Directions:

1. Scope out the area to be treated. Remove items that may be damaged by the process and set-up any protective sheeting to protect adjoining and surrounding surfaces (eg carpets, benchtops, furniture, etc). Shut down mechanical ventilation systems including air-conditioning systems.
2. Dry vacuuming will assist mould removal, but only if your vacuum is fitted with a HEPA filter. Standard dry vacuuming may spread mould spores through the atmosphere.
3. Prepare solution to be used.
   Bathrooms and Showers
   Mould Exterminator use as is. No further dilution required or,
   Mould Remover – use as is. No further dilution required.
   Standard mould infestation (Non-bathroom areas)
   Mould Remover - use as is. No further dilution required.
   Biosan II – add 65ml per litre of water (1:16).
4. Apply solution to the affected area. Ensure all areas and surfaces come into contact with the solution. Do not apply by spray. Sponge or cloth onto the area.
5. Agitate wherever possible to promote contact and penetration into porous substrates.
6. Allow a minimum of 10 minutes dwell time.
7. Agitate again and rinse thoroughly with clean water.
8. For surfaces with high porosity and/or surfaces which are moderately to severely soiled, repeat steps 3 to 7 to ensure complete mould eradication.

- Where staining still remains after **Biosan II** treatment, use **Mould Remover** to remove any discolouration.
- Clean all washing equipment used in a fresh solution of **Mould Remover or Biosan II** and rinse in clean water.
- **Fabrics, textiles, carpet and furniture** – can be effectively treated with **Mould Remover or Biosan II.** Always pretest for chemical sensitivity. Use the same method as described above.

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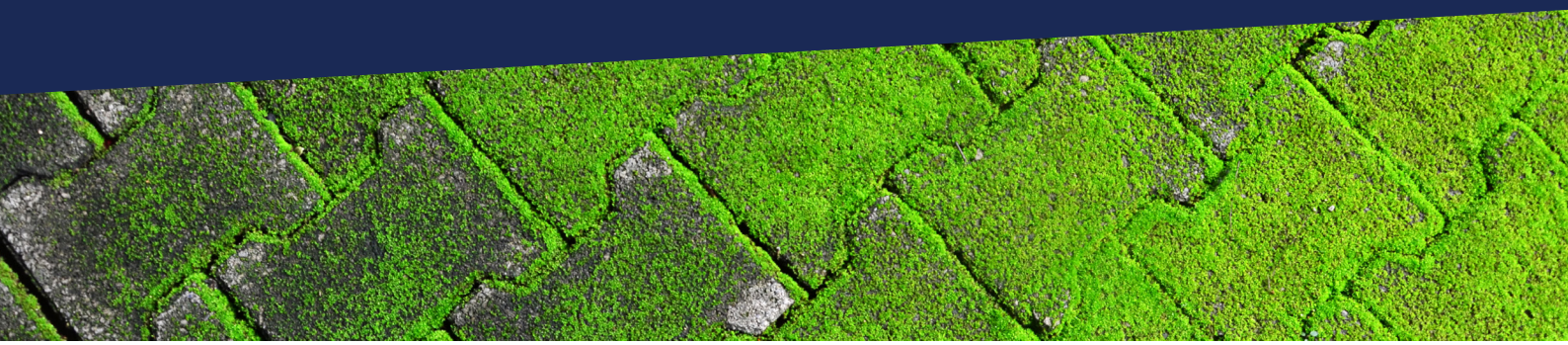
External Areas

Treatment for stone, concrete and masonry walls and floors



Treatment Directions

On all projects, even small projects, be sure to wear all recommended personal protective equipment. Ensure that you have read and understood the safety data sheet and technical information for all chemical products used. This includes a thorough understanding of directions for use and the limitations and capabilities of each product.

Directions:

1. Scope out the area to be treated. Set up necessary containment systems to protect adjoining surfaces including vegetation.
2. Remove all debris and loose soiling including sand, leaves and gross grime
3. Remove all mould spoiled material which is to be disposed of (eg. Rotting timber, etc) and any other material required to gain access to mould contamination.
4. Prepare solution to be used.
   Standard and heavy mould build-ups
   Mould Exterminator – No further dilution required

5. Apply solution to the affected area. Ensure all areas and surfaces come into contact with the solution. Application is best affected by a course spray or scrubbing equipment.
6. Agitate wherever possible to promote contact and penetration into porous substrates.
7. Allow a minimum of 20 minutes dwell time.
8. Agitate again and rinse thoroughly with clean water. The use of a pressure washer is ideal, however hold the spray lance 2 to 3 times further away from the surface than normal.
9. For surfaces with high porosity and/or surfaces which are severely soiled, repeat steps 4 to 8 to ensure complete mould eradication.

- Sandstone is particularly susceptible to black mould. Extended dwell times may be required to achieve complete stain removal.
- Wet down surrounding vegetation before starting the job. Wash down the vegetation again at the end of the job to minimise plant damage.
- Clean all washing equipment used in a fresh solution of **Mould Exterminator or Biosan II** and rinse in clean water.

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Mould Removal Guide

	Biosan II	Mould Remover	Mould Exterminator
Features			
Dilution	1:16	Ready-to-use	Ready-to-use
Actives	Benzylkonium Chloride (QAC/Quat)	Hydrogen Peroxide	5% active chlorine
Kill mould organism	★★★★★	★★★★★	★★★★★
Removes mould stain	★★	★★★★	★★★★★
Black Mould (Sandstone/Concrete)	★★	★★	★★★★★
Super-wetting ability	★★★★★	★★★★★	★★★★★
Safety (in-use)	Non-hazardous	Low Irritant	Irritant
Odour	Fresh Lemon	Nil	Mild chlorine
Area of use			
Textiles, carpets & furnishings	**Yes** (Stain resistance of 5th gen nylon will be affected)	**Yes** (Dilute 1:1 for natural fibres)	**No**
Indoor & inhabited areas	**Yes** (Ideal)	**Yes** (Ideal)	**Yes** (Use with caution)
Strip-outs & uninhabited areas	**Yes**	**Yes**	**Yes** (Ideal)
Bathrooms & showers	**Yes** (Ideal)	**Yes** (Ideal)	**Yes** (Use with caution)
Stone, concrete & paving	**Yes**	**Yes**	**Yes** (Ideal)
Shade sails	**Yes** (Ideal)	**Yes** (Dilute 1:1 for canvas & cotton)	**Yes** (Synthetic materials only)
Application method			
Spray or mist	Yes	Yes	Yes
Wet fog	Yes	Yes	No
Sponge or cloth	Yes	Yes	Yes

Washing down surfaces affected by flood water and moist air with Forest Fresh will help prevent mould growth and disinfect the area of harmful bacteria , fungi and viruses.

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