

Don't just take our word for it !

At some point, and you know this to be true, it will be too late. Mould is dangerous but “***not to all of the people all of the time***” you know the rest but **what is your strategy ?**

Below are some extracts from our “Indoor Contamination” awareness course **for which we provide solutions.**



The screenshot shows the HSE website's 'Guidance' section for COSHH. The header includes the HSE logo, 'Health and Safety Executive', and a search bar. The navigation menu has links for Home, News, Guidance, About HSE, Books, Free updates, and Contact. The breadcrumb trail is HSE > Guidance > Topics > COSHH. The main heading is 'Control of Substances Hazardous to Health (COSHH)'. Below this, there is a 'Guidance' section with several links and descriptions:

- COSHH basics**: Types of harmful substances and how to prevent or reduce workers' exposure to them.
- How to carry out a COSHH risk assessment**: Identify, assess and control the risks from hazardous substances in your workplace.
- COSHH essentials**: Control guidance sheets on hazardous processes and tasks in your industry.
- Chemical safety data sheets**: Sheets with information on chemical products to help you assess the risks.
- Workplace exposure limits**: Occupational exposure limits approved by HSE that help protect workers' health.
- COSHH and your industry**: Find out how COSHH affects you in your industry.
- Infections at work**: Ill health from exposure to micro-organisms like bacteria and viruses during work activity.
- Resources**: Links to publications, case studies, advice sheets and example risk assessments.



The screenshot shows the HSE website's page titled 'Construction hazardous substances: Harmful micro-organisms'. The header includes the HSE logo, 'Health and Safety Executive', and a search bar. The breadcrumb trail is 1/10/2018 Harmful micro-organisms - Controlling hazardous substances - Managing occupational health risks in construction. The main heading is 'Construction hazardous substances: Harmful micro-organisms'.

Construction workers can be exposed to a range of harmful micro-organisms such as bacteria, viruses and fungi. These pages tell you how to control these risks and why.

What you must do

The [Control of Substances Hazardous to Health \(COSHH\) Regulations](#)^[1] says you must protect against the risks from hazardous solvents. Follow the [Assess, Control and Review model](#)^[2]. Pay particular attention to:

Assess

Identify and assess: Construction workers can be exposed to a variety of micro-organisms. The level of risk depends on the type of micro-organism and the work being done. Identify those situations where significant micro-organism risks are likely to be present. Pay particular attention to [specific tasks](#)^[3] during groundwork, demolition or refurbishment.

1/10/2018 Aspergillus during demolition and refurbishment - Harmful micro-organisms - Controlling hazardous substances - Managing occupational h...



Construction micro-organisms: Aspergillus during demolition and refurbishment

Aspergillus is a fungus that can cause significant health problems when breathed in during certain construction work. This page tells you how to control this risk and why. You also need to be aware of the [general information on micro-organisms](#)^[1].

What you must do

Follow the [Assess, Control and Review model](#)^[2]. Pay particular attention to the following things:

Assess

Identify and assess: You can find Aspergillus in many situations; eg heating, systems, air conditioning or insulation materials. Most healthy people are not affected. However, it can affect people with existing health problems, particularly damaged lungs or a weakened immune system. You should pay particular attention to demolition or refurbishment work where there may be vulnerable members of the public – eg hospitals or care homes.

Control

Prevent and control: You should get [specialist advice](#)^[3] where there is a significant risk from Aspergillus. Appropriate solutions may include:

1/10/2018

Specialist help



Plan
[1]

Do
[2]

Check
[3]

Act
[4]

Specialist help

- [When you may need specialist help](#)
- [What the law says on specialist help](#)
- [Additional checks for employing an occupational physician](#)
- [Some examples of specialist help](#)

- [Key actions in managing specialist help effectively](#)^[5]

When you may need specialist help

You may need specialist help if your business has hazardous or complex processes. However, for many organisations a manager, leader, or competent member of staff should be able to take the necessary action to comply with the law.



The Approved List of biological agents

Advisory Committee on Dangerous Pathogens



The Approved List of biological agents

Biological agent	Human pathogen hazard group	Taxonomy / notes
Bacteria		
<i>Arcobacter butzleri</i> (formerly <i>Campylobacter butzleri</i>)	2	
<i>Actinobacillus actinomycetemcomitans</i>	2	
<i>Actinomadura madurae</i>	2	
<i>Actinomadura pelletieri</i>	2	
<i>Actinomyces gerencseriae</i>	2	
<i>Actinomyces israelii</i>	2	
<i>Actinomyces pyogenes</i>	2	See <i>Arcanobacterium pyogenes</i>
<i>Actinomyces</i> spp	2	
<i>Alcaligenes</i> spp	2	
<i>Arcanobacterium haemolyticum</i> (<i>Corynebacterium haemolyticum</i>)	2	
<i>Arcanobacterium pyogenes</i> (formerly <i>Actinomyces pyogenes</i>)	2	
<i>Bacillus anthracis</i>	3	Classified under SAPO

- 12 Genetically modified biological agents do not appear in the Approved List, although the wild-type species from which many of them are derived will be listed. Guidance on aspects of work with genetically modified micro-organisms is given in *The SACGM Compendium of Guidance* available on HSE's biosafety web pages.

Information box: Hazard group definitions

When classifying a biological agent it should be assigned to one of the following groups according to its level of risk of infection to humans

Group 1	Unlikely to cause human disease.
Group 2	Can cause human disease and may be a hazard to employees; it is unlikely to spread to the community and there is usually effective prophylaxis or treatment available.
Group 3	Can cause severe human disease and may be a serious hazard to employees; it may spread to the community, but there is usually effective prophylaxis or treatment available.
Group 4	Causes severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective prophylaxis or treatment available.



DAMP AND MOULD

Health risks, prevention and remedial actions

2. Removing the mould

Key message: After identifying and reducing/removing the moisture sources, the next step is to decide whether removing the mould from the affected areas is something that can be managed without professional help.

When the cause of the mould is related to building faults (leakages etc.) and/or the mould is also present in the building structure and material, it is recommended to get professional help. In this case, it may be useful to consult a national or local source of information to guide you in your selection of a suitable contractor.

If mould growth is due to condensation and the mould area is less than 1 m² (i.e., 1 metre high by 1 metre wide or roughly 3 feet high by 3 feet wide) and is not caused by sewage or other contaminated water, you can probably manage the job yourself following these guidelines or some of those listed in the references, such as the guidelines of the US Environment Protection Agency (EPA). Many national institutes have also published guidance documents in national languages (see examples in French, German and Spanish under "Further reading").

Whether the job is undertaken by a contractor or yourself, care has to be taken to avoid personal exposure to microscopic mould spores and the spread of spores within the building. If you yourself are undertaking the task of the mould removal, use a protective mask which covers your nose and mouth, wear goggles (without ventilation holes) to avoid getting mould or mould spores in your eyes, and protect your hands by wearing rubber gloves, preferably long ones.

Chemical disinfection and the use of biocides are not recommended as a routine practice for mould control as it may be toxic for the occupants. The application of disinfecting substances also does not solve the cause of the problem, and therefore may provide more health risks than benefits.



Are you sure you have an adequate plan in place?

Mould / Fungus / Yeast

“In the beginning”no matter where your beliefs lie ! Moulds / Fungi and Yeasts brought life to planet. 4.5 billion years ago from the sea to make soil. It is ubiquitous there is no possible way of removing it from general atmosphere unless a controlled environment is artificially created.

Scientists have found Fungus in lava 2.4 billion years old and 650 million years ago (around 3 o'clock it the beginning of the earth was at midnight) they split from fungi to create the simplest forms of the animal kingdom.



The Cataclysm that killed dinosaurs etc blacked out the sky and fungi was allowed to bloom and as they are intelligent respond to their environment, seek out food and solve problems, this is another reason with they difficult to eradicate.

Everywhere in everything, from the Oldest (Mycelium in theory can live for ever as long as they have food or nutrition) to the youngest living things on this small planet and from the largest organism thousands of km square to the among the smallest organisms.

It has its own kingdom, neither plant nor animal but somewhere in between but closer to animal ! so closer to the chicken on your Pizza than the onion.

With over 1.5 million identified there remains many times this yet to be named and or found. With only 20,000 species that produce mushrooms they cause Death and decay/decompose and move nutrients along life cycles.

Plants evolved to say 'hey come and get me' like a tomato ripening whereas our Fungi / Mushrooms don't care, some can kill you but so can some berries etc

Breaks down plant and animal life, **so why not as part of flooded buildings!**

A great number of them are classified as Sacrobes or rotters but have been used to produce some very useful by products, e.g. Yeasts, bread, beer, cheese, wine, whisky.

Used to combat Pollution, anything that is hydrocarbon based e.g. Oils enzymes, bacteria, fungi breaking bonds however Fungi do not produce smells.

Mycelium has more networks and neuro pathways than the human brain but also works with electro pulses / electrolytes almost like the Internet. This allows trees etc to transfer nutrients in a Forrest, mother trees can feed their offspring.

With specific regard to the health effects of mould and mycotoxins in water-damaged buildings, thousands of research papers have been published over the past 30+ years and many more are currently in progress.

It is time for our Local and National Government elected officials, courts, medical organisations, allopathic physicians and other non-believers to move beyond the focus of “establishing the fact of mould disease,” because it has already been established in numerous research papers and in the treatment of thousands of patients.

Let us take you on a journey, a journey that you never expected or probably even, if asked, would not want to go on but if you can make it to the end you'll be surprised and if nothing else a little wiser it explores Health and Well-being, Death and Destruction with a little bit of Sex ;-) **thought that might grab your attention !**

For the purposes of our journey we are only interested in the understanding of Fungi in its Mould form and how it relates to the built environment and any effect it might have on you.

Where to begin? Fungi are tremendously important to human society and the planet we live on. They provide fundamental products including foods, medicines, and enzymes important to industry. They are also the unsung heroes of nearly all terrestrial ecosystems, hidden from view but inseparable from the processes that sustain life on the planet.

It is estimated that there may be anything from 1.5 currently identified to 5 million species of fungi in the world, this makes fungi more than ten times as diverse as flowering plants. Yet only about 100,000 species have so far been described.

We have found approx. 100 bad Fungi of which 9 or 10 are the really naughty ones which we will elaborate on later.

There isn't a single vaccine against fungal infections and predominantly infect those with compromised immune systems e.g. cancer or transplant patients. HIV Aids patients in the 80's were particularly prone to fungal infections.

Medical Research & Spend*

UK 2.5%

USA 2.4%

Europe 2.0%

And it is estimated that there are;

> 1,000,000,000 Skin Infections worldwide annually,

> 100,000,000 Mucosal Infections annually,

> 10,000,000 with fungal specific allergies

> 1,000,000 fungal related deaths.

These figures are;

> than Malaria,

= TB & HIV,

> Breast Cancer.

* Professor Neil A R Gow, Aberdeen University.

FoodFungi, especially the brewer's yeast *Saccharomyces cerevisiae*, provide us with numerous foods and beverages, including staples like bread and beer.

The brewer's yeast is not only important for the production of delicious consumables but is nutritious, being especially rich in vitamin B12. Some moulds are important in the maturation of cheeses like blue cheeses (the colour comes from the mould's spores) and for providing a meat-like flavour in the production of many rice, wheat, and soybean products (for example tempeh, miso, soy sauce) used extensively in Asian cuisine. Similarly, fungi are even used as a meat substitute in products mimicking meat, like Quorn®.

Edible mushrooms are also common 'vegetables' that provide an important source of dietary fibre and complete protein: fungal proteins provide all of the essential amino acids, a consequence of their close relation to animals. Studies have shown that the protein content of the edible penny bun mushroom (*Boletus edulis*, also known as porcino, cep, king bolete) rivals and even exceeds some meat. This fact is especially important for people who subsist on wild-collected foods and have limited access to other sources of protein. Moreover, some mushrooms used as food may have medicinal properties, providing a smattering of health benefits.

Medicine Fungi provide extraordinarily powerful medicines that have revolutionised human health and have massive economic worth (eg antibiotics, immunosuppressants, cholesterol medicine). The penicillins and cephalosporins, cyclosporine, and statin drugs are all based on natural chemicals produced by fungi.

Mushrooms are also important ingredients in Traditional Chinese Medicine (TCM) and myriad therapeutic activities have been attributed to them, including anti-inflammatory, anti-viral and even anti-tumour effects.

Science and industry Fungi have industrial applications as well and several of the 'model organisms' which enable our understanding of fundamental biology like genetics and development, are fungi. Entrepreneurs are applying fungi to provide sustainable and biodegradable structural products such as building materials, packing materials, and even vehicle bumpers.

Many enzymes produced by fungi are valuable in the paper pulp industry, for bioremediation, and even for fashion: fungal enzymes are used to soften and fade denim jeans. Scientifically, the mould *Neurospora crassa* and the yeast *Saccharomyces cerevisiae* (brewer's yeast) are model organisms used all over the world in basic and applied science laboratories. And, in 1996, *Saccharomyces cerevisiae* became the first eukaryote to have its genome sequenced.

Needed by plants Fungi are also the humble accomplices in the domination of the planet's soils by plants: most plants rely on fungi in or on their roots to facilitate water and nutrient uptake – in fact, it is thought that root-associated fungi enabled the initial colonisation of land by plants nearly 600 million years ago. They are also the main decomposers of organic material, providing an essential service to life on the planet by recycling nutrients.

Fungi are not plants Fungi are important organisms and so distinct from plants and animals that they have been allotted a 'kingdom' of their own in our classifications of life on earth.

Well, at least since 1969 when they were first officially recognized as a distinct group. And more recently, using DNA sequences and comparisons of cell structure, we have learned that Fungi are in fact more closely related to animals than they are to plants. Superficially, they remind us more of plants than animals because they don't move, but scratch the biological surface just a little and that's just about the only thing they have in common.



How do Fungi eat? Unlike plants, which make their own food, Fungi are like miniature versions of our stomachs, turned inside-out. Fungi 'eat' by releasing enzymes outside of their bodies that break down nutrients into smaller pieces that they can then absorb. This feeding strategy means that Fungi always live in and on their food.

How is a fungus built? Fungi come in many different sizes and shapes. Some are single cells called yeasts, while most are built from masses of tiny filaments. During reproduction, portions of these masses of filaments will differentiate from each other to make complex structures that are sometimes called fruiting bodies. These are best known from the mushrooms, like the iconic fly agaric (*Amanita muscaria*), but many other types of fruiting bodies are made by Fungi.



Fungal sex Reproduction happens by self-cloning or through sex with compatible partners. Mostly this is accomplished by producing lots and lots of spores, which can disperse far and wide and, with luck, find a mate. But fungi don't have just two sexes (like male and female), instead they have what are called 'mating types', and there can be as many as 20,000 different ones. Not only that but sometimes the filaments that make up the bodies of two individuals will fuse and merge their DNA – an extraordinary way of having sex that neither plants or animals can achieve.

Where does a fungus live? Everywhere: Antarctica, the Amazon jungle, the Gobi desert, and even all over (and inside) you, just to name a few locations.

Fungi are amazingly well adapted to just about any condition on Earth. But maybe that's not so surprising – they have had over one billion years to figure it out.

However Not all fungi are good: they can be major pests of forests, crops, to humans and increasingly, are causing pandemic infections in wild animals like amphibians and bats, driving some of them to extinction.

Saddam Hussein initiated an extensive **biological weapons (BW) program in Iraq** in the early 1980s, in violation of the Biological Weapons Convention (BWC) of 1972. Details of the BW program—along with a chemical weapons program—surfaced only in the wake of the Gulf War (1990–91) following investigations conducted by the United Nations Special Commission (UNSCOM) which had been charged with the post-war disarmament of Saddam's Iraq. By the end of the war, program scientists had investigated the BW potential of five bacterial strains, **one fungal strain**, five types of virus, and four toxins.

Mycotoxins are defined as naturally occurring toxic compounds obtained from fungi. They are the biggest chronic health risk when incorporated into the diet. The current list of fungal toxins as biochemical weapons is small, although awareness is growing of the threats they may pose. T-2 toxin is perhaps the biggest concern. A clear distinction is required between the biological (fungus) and chemical (toxin) aspects of the issue. There is an obvious requirement to be able to trace these fungi and compounds in the environment and to know when concentrations are abnormal.

Moulds, Mycotoxins, & More

Many health effects are caused by exposure to the interior environment of Water Damaged Buildings (WDB). The complex mixture of contaminants present in the air and in the dust in WDB form a toxic chemical stew.

There are so many possible sources of these toxic compounds found in WDB that can lead to the variety of symptoms caused by mould illness, no single compound can be identified as the sole cause of the inflammatory responses, or the illness, seen in affected patients. Since no one thing can be deemed as solely responsible for the sickness, the sole cause becomes the WDB itself.

Below is a list of some of these dangerous compounds and an explanation of each. Please understand this toxic chemical stew is a very complex mixture that truly wreaks havoc in the body. These explanations are simplified to make them easier to understand.

Knowledge is power and patients have the right to understand what is making them sick, so they can avoid exposure in the future.

- **Fungi (fun gi)** - A single-celled or multicellular organism. Fungi can be true pathogens that cause infections in healthy persons or they can be opportunistic pathogens that cause infections in immunocompromised persons.
- **Bacteria (bak-tē re-ah)** - Single-celled microorganisms which can exist either as independent (free-living) organisms or as parasites (dependent upon another organism for life).
- **Actinomycetes** - A group of gram-positive bacteria (order Actinomycetes) that produce various bioactive agents.
- **Mycobacteria [mī'kōbaktir'ē ə]** - A large family of bacteria that have unusually waxy cell walls that are resistant to digestion.
- **Mould (mōld)** - Mould refers to multiple types of fungi that grow in filaments and reproduce by forming spores. Mould may grow indoors or outdoors and thrives in damp, warm, and humid environments. Mould can be found in essentially any environment or season.

The most common types of mould that are found indoors include *Cladosporium*, *Penicillium*, *Alternaria*, and *Aspergillus*. *Stachybotrys chartarum* (also known as *Stachybotrys atra* and sometimes referred to as "black mould") is a greenish-black mould that can also be found indoors. *Stachybotrys* grows on household surfaces that have high cellulose content, such as wood, gypsum board, paper, dust, and lint.

Moulds reproduce by forming tiny spores that not visible to the naked eye. Mould spores are very hardy and can survive under conditions in which mould cannot grow, such as in dry and harsh environments. These spores travel through outdoor and indoor air. When mould spores land on a surface where moisture is present, mould can start to grow.

- Spore (spor) - tiny spores that are not visible to the naked eye produced by mould. Mould spores are very hardy and can survive under conditions in which mould cannot grow, such as in dry and harsh environments. These spores travel through outdoor and indoor air. When mould spores land on a surface where moisture is present, mould can start to grow.
- Mycotoxins (mī'kōtok'sin) - toxic chemicals that are present on spores and small fragments of mould and fungus that are released into the air. **Aflatoxins** pertaining to 'Aspergillus **Flavus**' found mainly in soils. Ochratoxins pertaining to Aspergillus; Orchraceus, Carbonarius, Niger and Penicilium and mainly in foods.
- Endotoxins (en'dōtok'sin) - also called Lipopolysaccharides (LPS), are cell wall components of Gram negative bacteria. They are shed into the environment of WDB upon death of the bacteria. LPS cause inflammatory responses via signalling pathways in the body, releasing inflammatory cytokines. LPS aggravate existing lung disease (asthma, HP), can cause inflammation of the lungs and are synergistic with mycotoxins.
- Inflammagens (in-flam-ah-jen) - an irritant that elicits both edema and the cellular response of inflammation
- Beta Glucans (beta-glucans) - are polysaccharides of D-glucose monomers linked by β -glycosidic bonds. β -glucans are a diverse group of molecules that can vary with respect to molecular mass, solubility, viscosity, and three-dimensional configuration.
- Hemolysins - exotoxins produced by bacteria that cause lysis of red blood cells in vitro.
- Volatile Organic Compounds (VOCs) - Microbes can release organic compounds into the air when there is adequate food supply for such "secondary metabolite" production. These volatile compounds, called mVOCs for short, can give basements their distinctive musty odour as well as activate innate immune responses in susceptible patients. While we think of fungi as the most common producers of mVOCs, bacteria and actinomycetes are indoor-producers as well and just to finish offan **aspergilloma**', **also known as a mycetoma** or **fungus ball**, is a clump of mould which exists in a body cavity such as a paranasal sinus or an organ such as the lung. By definition it is caused by fungi of the genus *Aspergillus*

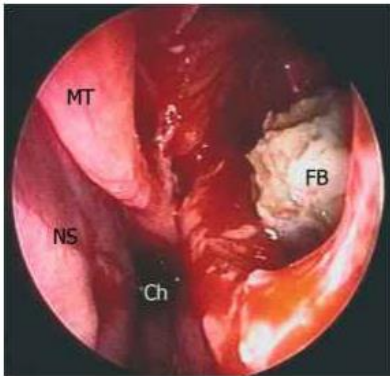


Fig. 6.16. Intraoperative view of left nasal fossa (0° rigid endoscope). After uncinectomy, a fungus ball (FB) filling the maxillary sinus is detected. Choana (Ch); middle turbinate (MT); nasal septum (NS)

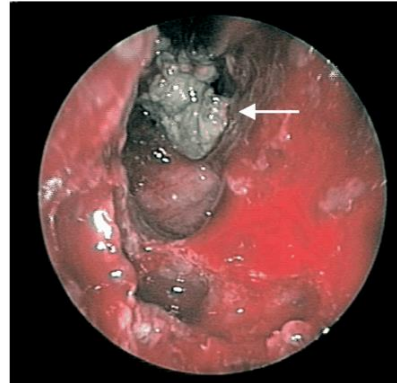


FIG. 2.

Endoscopic view into the entrance to the sphenoidal sinus showing fungal masses of *Bipolaris spicifera* (arrow).

Moulds come in all shapes, sizes, and colours, and while some may think that colour can serve as an identifying characteristic, unfortunately, it is not. The main means of identifying Moulds involve looking closely at the structure, spore, and growth morphology, which isn't easily done without access to a lab. Colour isn't a good distinguishing characteristic of Mould or toxicity because one patch can have multiple colours or change colour for several reasons. Some factors that affect Mould colour are:

- Food source
- Humidity level
- Light exposure

Regardless of what colour a Mould is, if it's in your property, that's a sign that there is an active moisture problem and it should be removed as soon as possible so the moisture problem can be fixed. Here's a guide to Mould colours that you might find.

MOULD Colours

Green

Green is the most common colour for Mould. There are hundreds of thousands of types of Mould and thousands of them appear as green at some point during their life. So when it comes to green Mould, the colour won't tell you much, but chances are that it's one of these three:

- *Aspergillus*
- *Penicillium*
- *Cladosporium*

Black

Black Mould is an infamous member of the Mould family, but not all black Moulds are toxic. While it's important to deal with all Moulds as soon as possible, dealing with toxic black Mould should be handled by a professional. There are several different kinds of black Mould that can be commonly found in a property, so watching out for certain characteristics can give you an idea of how urgent its removal is.

Stachybotrys chartarum is the infamous toxic black Mould. It often appears as black or greenish-black in colour and can be found growing in leaky areas, old decaying wood, paper, and foods. ***S. chartarum*** requires constant moisture to maintain growth, so the quicker these areas are addressed, the less of a threat it will be. You may find black Mould inhabiting your basement after a flood or around a roof leak. The reason ***S. chartarum*** is so dangerous is that it produces a fungal by-product called a mycotoxin, which can be ejected into the air and inhaled by humans and animals. Studies show that exposure to indoor toxic Mould like ***S. chartarum*** accounts for far more deaths in the U.S. than previously thought. Exposure to mycotoxins like those found in ***S. chartarum*** can result in headaches, sneezing, coughing, rashes, and sometimes even blood poisoning. Myrothecium is a genus of now placed in the family Stachybotryaceae.

Alternaria

It's crucial to be aware of the possibility that a black-coloured Mould could be ***S. chartarum***, but there's a good chance that it's ***Alternaria***, which is much less dangerous. ***Alternaria*** species usually grow outdoors in dusty, damp areas near plants and soil, although recently they have been found growing in houses. Exposure to ***Alternaria*** could exacerbate asthma, but other than that, it doesn't pose many health risks.

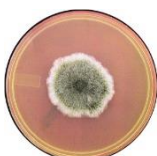
Aspergillus is another common fungus that studies suggest you actually breathe in every day. Exposure in large amounts can result in aspergillosis and other respiratory problems in those who have pre-existing conditions.



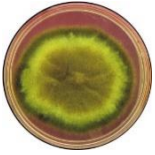
Cladosporium

Black-coloured Mould in the home can also be a species of ***Cladosporium*** Mould, which usually grows outdoors on decomposing leaves. It can find its way indoors and colonize walls, insulation, and carpet, and exposure can sometimes lead to skin rashes, eye irritation, and sinus infections.

Memmoniella also referred to as black mould, is similar to *Stachybotrys* and has the same effects. *Memmoniella* differs in that when viewed under a microscope, its spores are released in chains, whereas the spores that *Stachybotrys* releases are in clumps.



Ulocladium is black in color and often found in wet areas and homes that have suffered water damage. This type of mold commonly grows in bathrooms, basements, and kitchens. It has two subspecies both of which are highly allergic. It is linked to severe allergic reactions such as hay fever and sometimes skin infections. Prolonged exposure to its spores causes difficulty in breathing and asthma-like symptoms.



Chaetomium is also allergic and is often found in a drywall that has previously been damaged by water. Its spores have been linked to autoimmune diseases, neurological damage and allergic reactions such as difficulty in breathing and red watery eyes.

It has a musty odor and flourishes in wet, dark environments such as under carpets, drywall, baseboards, and wallpapers. Chaetomium is often mistaken for the black mold as they have the same characteristics and exists in similar environments.



Purple

Purple is not a common colour for Mould to be, but if you do see it, it's probably a colour variant of toxic black MOULD—***Stachybotrys chartarum***.

White

White is another common colour for Mould growing in the home and it can be one of a few different types.

Alternaria

There's a good chance that any white Mould found in your home is ***Alternaria***. This is one example where one Mould can change colour depending on conditions.



Chaetomium is a Mould that can thrive anywhere—it's adaptable and resilient. It can grow on many hosts regardless of what they're made of, but it prefers damp, dark locations. Some might describe it as cotton-like in appearance, and others may write it off as salt deposits on basement walls. One of the distinguishing characteristics of ***Chaetomium*** is its scent; it is often the culprit of the musty odour that you may smell in basements, attics, and on foods.

Penicillium is another multi-colour fungus that can sometimes be white. The discovery of the **Penicillium** genus served as a monumental step in the medical field as it led to the creation of Penicillin. It can be found on food and walls in homes with high humidity and while it is an important ingredient in Penicillin, it can cause serious allergic reactions if improperly handled.



Geotrichum is white in color and usually appears powdery. It is known to spread pretty fast and is often associated with adverse health conditions such as tuberculosis and pulmonary infections.



Geotrichum breeds in moist conditions and temperate climate. Its spores can easily spread via air to new environments. It is an allergen that causes itchy eyes, fatigue, and sometimes chronic headaches.

Trichoderma is also white in color with green patches. It is an allergic type of mold that mostly thrive in moist areas. The mold has five different subspecies, most of which are non-pathogenic. However, some of the subspecies have been associated with liver and pulmonary infections.



Trichoderma contains a lethal enzyme, which can destroy such building materials as wood, textiles and paper products. This may lead to the crumbling of buildings when the materials rot.

Blue

Blue is another common colour to see in **Penicillium** Moulds found on food and walls.

Pink

You might find a discoloured, pink film on your shower curtain or bathtub if they have gone unwashed for a while—this is known as “pink Mould.” Calling it a Mould, though, is a misnomer because it’s actually a bacterium called **Serratia marcescens** that thrives on soap residues.

There’s no permanent solution except to clean your bathroom more regularly, but while it can cause urinary tract infections and respiratory problems, luckily it’s not easy to get infected.



Fusarium can range from pink, reddish or white in color. It is capable of adapting to colder temperatures and mostly grows on food products, compost, carpets, wallpaper, and any other water-damaged materials.

Exposure to this mold can cause allergic reactions, including a sore throat, dermatitis, itchy eyes and running nose. Further exposure can cause lethal conditions such as brain abscess and bone infections. Its toxins can damage the nervous system and cause internal bleeding.

Yellow

Also commonly known as slime mould, this type of mould is yellow in colour and appears as bright slime. Some of the moulds that produce yellow hue include *Aspergillus*, *Serpula lacrymans*, and *Meruliporia*.

They mostly grow and breed on wooden surfaces, food materials, walls, bathrooms, and tiles.

Aspergillus

Sometimes ***Aspergillus*** Mould can appear yellow. As mentioned before, in the black Mould section, it's a very common type of MOULD found in houses and is largely low-risk.

Serpula lacrymans isn't dangerous for humans as much as it is for the structural integrity of wooden structures. This fungus is an excellent destroyer of damp and rotting organic material, which can spell disaster for your house if not removed. It grows quickly and consumes indoor and outdoor wooden surfaces with ease if the conditions are ideal.

Epicoccum nigrum is a fast-growing, yellow Mould that can be found in or on damp drywall, mattresses, wood, carpets, and furniture. It ranges in colour from yellow to orange to brown depending on conditions and surroundings.

Geomyces pannorum is a more unique fungus than the others on this list—it only grows in cooler conditions. This means that it is largely relegated to damp walls, floors, wood, and paper in northern hemisphere climates.

Slime Mould

If you come across a slimy, bright yellow Mould in your home, stay very far away from it. Don't touch it or inhale it as best you can. Bright yellow Moulds are usually not true Moulds, rather

they're an unrelated organism called a "slime Mould." Slime Moulds can be very toxic and exposure should not be taken lightly. None of the other yellow Moulds in this list are bright yellow—they're more of a whitish or brownish-yellow—so a yellow slime MOULD should be easy to distinguish.

Red

You may spot red Mould on building materials such as particleboards or drywall that have been subjected to water damage. Red is usually not a consistent colour for Mould to be, and it usually will change colours over time. Many species of Mould can become red at some point during their lives, but it's most likely ***Aspergillus*** due to its prevalence. If you find red Mould on food, however, that is probably ***Neurospora***.

Orange

Orange MOULD is similar to ***Serpula lacrymans*** in that it is a fast-growing Mould that can cause serious damage to wooden structures over time. It's often found on wooden surfaces inside or outside the home like tables, chairs, beams, and floors. Exposure to orange Mould may aggravate asthma and other respiratory conditions, but it usually poses little to no health risk.

Brown

Brown is another colour that may be present in several different Mould colonies. Many brown Moulds can spread quickly on harder surfaces, and while they may cause allergies in some, they're largely safer to be around. Many of these Moulds have a very musty scent to them. Brown Mould can be any of the following types:

- *Pithomyces chartarum*
- *Aureobasidium pullulans*
- *Stemonitis*
- *Taeoniella*
- *Cladosporium*
- *Mucor****

Mucor is the exception to the rule when it comes to brown Moulds being generally safe to be around. ***Mucor*** is a Mould type that is very dangerous to be around and can sometimes cause a life-threatening blood infection called mucormycosis. This is one variety of Mould that is hard to

distinguish because at any point during its life cycle it can be brown, yellow, black, white, or grey.

Bipolaris, as it begins to grow, bipolaris is whitish or grayish brown in color, but gradually turns to dark olive as it ages. It looks soft and fluffy and usually grows outdoors on grasses and soil. It also thrives in water damaged materials such as carpets, hardwood floors, and houseplants. It grows rapidly and only takes about five days to mature. It is a well-known allergen and may cause asthma, wheezing, stuffy nose and coughing when its spores are inhaled.

