

EnviroNote 1134 - January 2024

Mould in the Built Environment



Mould is a naturally occurring organism and plays a significant role in the Earth's ecosystem by being a beneficial decomposer and recycler of nutrients.

Mould is ubiquitous in our environment, belonging to the kingdom fungi, which includes mushrooms and yeast. Moulds are found virtually everywhere, both indoors and outdoors.

Moulds are opportunistic organisms, often lying dormant or innocuous until they encounter ideal environmental conditions, such as high humidity, limited ventilation, and a source of nutrients. As a result, damp, or poorly ventilated areas, including walls, wallpaper, ceilings, bathroom tiles, carpets (particularly those with jute backing), insulation materials, and wood, provide favourable conditions for mould growth. Due to this opportunistic nature, mould can be the ideal indicator for larger issues in a home or building such as water leaks, improper ventilation or building envelope and design flaws. Its presence in high concentrations can also indicate damage to a building after a significant event such as flooding and can lead to significant health implications.

Indicators of mould in a home or building are:

- Visible mould growth
- Dark spots on surfaces
- Dark tile grout
- Musty, damp, or earthy smell
- Health implications such as allergies, irritation and respiratory infections

Spores: Small, typically single cells produced from fungal reproduction. They serve as a means of reproduction and dispersal in these organisms, enabling them to survive, reproduce, and adapt to various environments.

Mycotoxins: Toxic chemical compounds produced by specific types of moulds under particular environmental conditions.

Negative Health Impacts of Mould

There are various types of moulds, some of which have the potential to pose health risks to humans and animals. The severity of these health risks depends on the type of mould, the extent of exposure, and an individual's sensitivity. Health risks associated with mould exposure, whether through consumption, inhalation, or other forms of exposure, may include allergic reactions, asthma, respiratory issues, mycotoxicosis, fungal infections, hypersensitivity pneumonitis, and irritation. These health effects are often triggered by the moulds themselves, their **spores**, or the **mycotoxins** they produce, and they are most commonly observed in indoor settings.

Mould Testing Across Australia & NZ

Eurofins operates three laboratories in Newcastle and Melbourne (Australia), and Tauranga (New Zealand). These facilities provide a range of living (viable) and dead (non-viable) mould testing services to assess the extent of contamination within a premises.



Supported by an extensive courier network, our mould laboratories accept samples from anywhere across Australia and Aotearoa New Zealand

Correctly Sampling for Mould

It is essential to have a hypothesis to test prior to sampling for mould. Are we looking for viable mould or both viable and non-viable? Are we concerned that airborne mould is causing respiratory symptoms, or that contamination in one section of a premises has contaminated other areas? Without a valid hypothesis / concern to investigate, it is hard to make definitive decisions.

Equally as important with mould sampling, due to the lack of accepted industry regulations, is to have a comparative sample. Most used is an outdoor comparative for Air-O-Cell® (spore-trap cassettes) and Bio-Tape™ (tape lifts), and for viable samples, generally an unaffected area of the building can be used. This procedure provides a baseline for normal exposure and sampling must be done on the same day, under the same sampling conditions as other samples.

By comparing test samples to unaffected or outdoor comparison samples, we can gauge the level of contamination within area of a building and therefore make decisions on remediation and extent of contamination based around that.

Currently the *ANSI/IICRC S520 Standard for Professional Mould Remediation* is the closest document to being an official standard, and it is going through the process of being converted into an Australian Standard.

Preventing Mould Growth

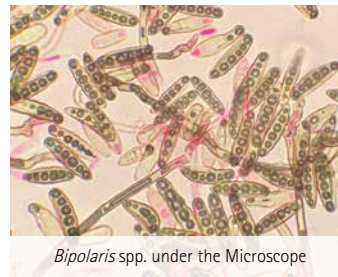
Extensive mould contaminations cannot be cleaned, the contamination must be removed. However, to prevent mould contamination from getting out of hand, it is important to first identify then eliminate the source of moisture that encourages mould growth. Enhancing ventilation in laundries, bathrooms, wet areas and ensuring proper humidity control can prevent future mould growth.



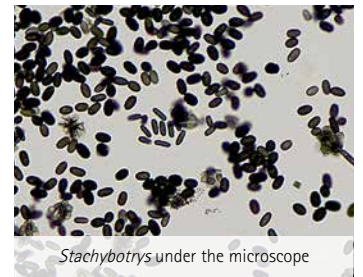
Testing Techniques & Mould Varieties

The most common types of mould testing are using Air-O-Cell® for air, and Bio-Tape™. Once the samples have been taken, they are transported to one of our laboratories where they are assessed by our experienced teams using light microscopy. Light microscopy enables the analysts to identify the genus of the various spores based on their morphological features. These tests have a very quick turnaround however cannot differentiate between viable or non-viable moulds.

Many variables can impact sampling and it is important to always ensure that the sampling method supports the hypothesis. The pump flow rate and sampling time for example is essential to accurately deliver the overall results for air samples. The quality of the consumables being used is equally as important. Using equipment within calibration, regular service and maintenance of equipment and using consumables within the expiry all contribute to producing high quality results.



Bipolaris spp. under the Microscope



Stachybotrys under the microscope

Sampling Equipment & Consumables

Eurofins Environment Testing offer a complete range of mould and environmental sampling consumables, as well as equipment sales and hire. www.eurofins-estore.com.au



Mould Laboratory Contacts

Newcastle (NSW Australia) - Mould Laboratory
EnviroSampleMLD@eurofins.com

Melbourne (VIC Australia) - Eurofins | AEML
samplerceiving@aemlpty.com.au (Melbourne,AU)

Tauranga (NZ) - Eurofins | Focus
SamplesTGA@eurofins.com

Global Leader - Results You Can Trust

Our laboratories are proudly accredited for a wide range of organic and inorganic chemistry analyses and microbiological testing.



Laboratories

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Sydney Canberra Christchurch
Brisbane Newcastle Tauranga

Offices

Adelaide Geelong
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