

Combatting Mould in the Tropics

Anyone who lives in the tropics, even if just for one Wet Season, will be all too familiar with the dreaded mould growth. By the beginning of the Dry Season you would have finished discovering most of the outbreaks, in hidden corners of rooms or the back of cupboards. The discovery is often accompanied by that frustrated exclamation "Not the leather shoes! Not the woven basket again!"

Mould can be damaging to our health and to a wide range of organic materials. The extent of the damage to materials ranges from disfiguring and staining of surfaces to penetrating through the whole structure of the object.

Mould spores are present in the air and only become active in particular environmental conditions. Mould growth is activated by continuous levels of high relative humidity (RH) above 65%, which is unfortunately a common occurrence during our Wet Season. Spores also thrive in stagnant, dusty, acidic and oily/greasy environments, which explains why, the older the shoes, the mouldier the shoes!

Mould especially affects organic materials, such as paper, gelatine on photographs, canvas, textiles, glues, wood, bark and leather. These materials are porous so can absorb lots of moisture during periods of high humidity and also present difficulties with effective cleaning.

Initial assessment of mouldy objects and artworks (unpainted surfaces only)

So you've found mould on your artwork or object. There are a few steps that you should do before you consider if you are able to undertake any remedial work.

This includes:

- If the object or artwork is insured, take photos and contact your insurance company to determine their process. Hold off on attempting any treatment yourself as this may damage the artwork or object further and affect an insurance claim.
- If mould is present on a sensitive or painted surface consult a professional conservator before attempting any treatments yourself. Unstable, sensitive or painted surfaces may react unexpectedly to any treatment!

Unpainted surfaces include things like...

- Woven baskets
- Some photographs
- Cloth and leather bound books
- Works on paper (screenprint, etching)

There are certain things you will need before attempting to clean mouldy artworks or objects to prepare yourself and the object.

Keep yourself and the object safe by:

- Remembering that mould is dangerous to your health and you should always wear a disposable respirator when dealing with it. Disposable P2 class masks can be purchased from your local hardware store or safety product suppliers. You should also wear gloves and safety glasses to prevent any mould spores from coming into contact with your skin/eyes (be careful when removing these afterwards so the spores don't spread). If you have a known mould sensitivity or allergy, we'd advise that you do not handle any mouldy objects.
- Check that the object or artwork is in a stable condition. Look to see if the surface of the object is intact and does not have any cracks or breaks. These may mean the object is unstable. If in doubt, talk to a Conservator.
- Isolate the object to prevent further spread of mould spores.

Now that you have protected yourself from the health risks presented by mould and inspected your object thoroughly, you'll need some pieces of equipment to undertake the relevant treatment procedure.

Equip yourself with the following items:

- 99.8% isopropyl alcohol (can be purchased from Bunnings or Jaycar)
- cotton wool swabs
- paper towel
- soft small or medium natural bristle brushes
- small glass jar
- P2 class disposable respirator with valve
- latex gloves (powder free)
- safety glasses

A word of caution!

In some cases, cleaning mould from unstable objects will have a more detrimental effect than leaving the mould on. For example some photographs may react poorly to wet treatments. Contact a conservator prior to testing if you are unsure and particularly if the object or artwork is significant or valuable.

Treatment options

The method you use will depend on the type of mould. There are two main types of mould:

Dry (powdery) mould: this type of mould sits on the surfaces of objects. It is usually grey, white or green in colour. Dry mould can start in small spots and spread.	Wet mould: appears to be embedded in the surface of the object. May be various colours including green, purple, or red.
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Dry (powdery) mould

1. This type of mould can be brushed off, using a soft or medium natural bristle brush.
2. To prevent the spread of mould spores to other items in the same area, work outside in the shade or brush the mould towards the nozzle of a vacuum cleaner (held a safe distance from the surface) fitted with a HEPA filter (other filters will not trap mould spores which will be passed out in the exhaust).
3. To sterilise any remaining mould spores, swab in the same manner as described below.
4. Wash and disinfect used brushed with 7 parts isopropyl alcohol and 3 parts water mix or discard.

Wet mould

1. Wet mould can be swabbed off with the following solution:
 - a. Mix in a small glass jar 7 parts isopropyl alcohol to 3 parts filtered water.
2. Using a cotton wool swab, **FIRST TEST AN INCONSPICUOUS AREA TO BE CLEANED**. If there is no smudging or tidal marks on the object and no object (colour) residue on the swab, clean off the mould with damp swabs (removing excess moisture from the dipped swab onto the paper towel). Try to lift the mould off by rolling the swab instead of rubbing it in. Change swabs at regular intervals.
3. Allow object to dry fully.

With particularly porous materials, it is often impossible to completely remove all traces of the mould, particularly if it has caused staining. If you do not obtain total removal after reasonable time, it may be the best result that can be achieved.

Can I put the mouldy object or artwork in the sun?

There is debate about the efficacy of using sunlight to sterilise mould. If you decide to use sunlight:

- Brush or swab the mould off the object first as noted in the 'Treatment options' above.
- Use morning sunlight (less intense).
- Place the object in the sunlight for not more than half an hour each side.

Be aware that sunlight may increase the melanin production in mould that will cause staining of the object. The strength of sunlight will also contribute to fading of materials – so don't forget to retrieve your object from the sunlight.

Preventing future mould growth

When you have finished all the cleaning up for the year, the key is to be prepared to face another Wet Season. Luckily you have a bit of a break during the Dry, but don't forget to start taking precautions before October/ November before the humidity sets in.

If your display or storage space is particularly prone to mould growth, consider the following:

- Air circulation minimises mould growth. Paintings or any artworks hanging on the wall, should have a backing to prevent exposure to dust. External walls particularly transfer dampness and heat from outside, apply a spacer or hang artwork elsewhere.
- Keep the fans on, for your artworks' benefit. Highest levels of humidity are reached during the early hours of the morning. Borrow an additional oscillating fan/s to promote air movement.
- Avoid placing objects in corners of rooms or closed cupboards where there is minimal air circulation.
- Maintain a clean environment by vacuuming and dusting to prevent dust. Mould settles and thrives on dust.
- Regularly inspect artworks and leather for signs of mould.
- Consider investing in a portable dehumidifier. The unit works to remove moisture from the air and can be used for period with high humidity.
- When storing artwork ensure they are dust free and consider using good quality buffering materials/techniques.

If you have a persistent mould problem, you may have to 'disinfect' the room before taking any of the above steps. This may include wiping walls with a known mould disinfectant such as Exit Mould™.

If mould is growing in particular areas of the building or room, even during the Dry Season, it usually indicates the presence of localised high humidity which may be caused by faulty plumbing or damp walls.

All of the above are measures to minimise mould growth, but they cannot guarantee outbreaks won't re-occur. Hopefully, they will contribute to protecting your valued possessions.

Contact us

If you have any questions, please feel free to contact us: magnt.conservation@magnt.net.au

For contact details of a private conservator visit the AICCM website: <https://aiccm.org.au/>

Disclaimer

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