

MOULD INFORMATION LEAFLET

DEVELOPMENT | TREATMENT | PREVENTION



MOULD - A health and structural risk

MOULD IN INTERIORS

Moulds, like bacteria and germs, are microorganisms that are an important and natural part of our environment. Both in living quarters and workplaces as well as outside, human beings are constantly confronted by microorganisms. As long as our immune response is intact, most of them pose no health risks. However, under constant exposure to high concentrations in the air or in case of a weakened immune response, mould otherwise classified as safe can become a health risk and trigger infections, allergic reactions or even poisonings.

If the damage produced by mould is extensive, however, it frequently affects not only the risk of residents but the structure as well. The reason: Mould always indicates higher humidity, which can lead to significant structural damage and loss of value. Mould in interiors must therefore be assessed as problematic and can cause or trigger the following:

- **annoying odour**
- **health damages**
- **visual disturbances** and/or,
- **destruction of materials.**



Massive mould damage behind a removed kitchen range

CAUSES of mould growth in interiors

The basic requirement for mould growth in buildings is, apart from sufficient nutrients, the presence of **humidity**. Here, the decisive factor is not the room's humidity but the humidity in the wall or ceiling. If the aim is to minimize the risk of mould growth in the house or apartment, attention should be paid to the following:

- **the relative humidity in the wall or ceiling surface may not exceed 70%.**
- **the surface temperature of the wall/ceiling should be at least 12.6 °C.**

With higher humidity and/or lower temperature, there is a higher risk of mould development. Accordingly, the following **usage- related and structural causes** for mould contamination in interiors are summarized:

- **excessive generation of internal humidity** (e.g. caused by cooking, showering, house plants)
- **incorrect ventilation** or undersized/missing ventilation possibilities
- **Insufficient heating**
- **poor thermal insulation level, (geometric) thermal bridges**
- **higher heat transfer resistances** (e.g. caused by wrongly placed furnishings)
- **window installation during the course of old-building renovation**
- **humidity of the building construction** (e.g. caused by insufficient protection against driving rain of the facade, missing or defective building waterproofing, new building humidity, water damage or roof leaks).

Humidity sources



What must be paid attention to during the mould clean-up?

If there is mould contamination, measures to get rid of the damage must be implemented at once. At the same time, the cause of the damage should always be determined and eliminated as far as possible. With larger areas of mould damage, in particular, we urgently recommend hiring experts so they can perform the cause analysis and recommend the measures to be taken.



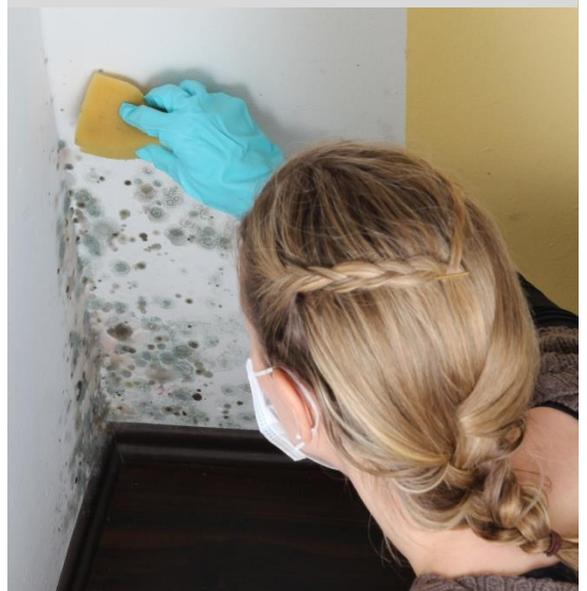
What should you pay attention to during MOULD CLEAN-UP?

If the recommendations of the German Federal Environmental Agency are followed, the expense and effort of the mould clean-up in interiors must be adapted to the extent of the damage and how the space is used. The following recommendations for action are differentiated:

- Mould clean-ups of smaller, connected areas (< 0.5 m²) can be easily carried out, even by the non-professional using appropriate products.
- Mould-clean-ups of larger, connected areas (> 0.5 m²) should be carried out by an expert (consultant, specialized business).

Important indications for the clean-up:

1. Basically, **suitable protective clothes**, protective gloves and safety goggles/safety mask should be worn during the clean-up.
2. **If the contamination is recent**, mould is growing generally on the surface. Mould can be removed from smaller, superficially contaminated spots by disinfecting them with **BIONI CLEAN** (read the technical data sheet!). Porous spots should be cleaned beforehand with a vacuum cleaner. The air coming out of the vacuum cleaner must be cleaned with HEPA filters.
3. **Larger and older contaminated spots** must be cleaned-up by removing the contaminated wallpaper. If the contamination is deep, the affected plaster layers may have to be removed and coated with a suitable system to contain the fungal biomass (e.g. BIONI SYSTEM).
4. **The surfaces** of the affected rooms should be thoroughly wet cleaned after mould removal.
5. **Structural defects** must be eliminated.
6. The causes for the mould-promoting climate should be eliminated (e.g. changing living habits, ventilation system).



BIONI® Interior Coatings for combating mould

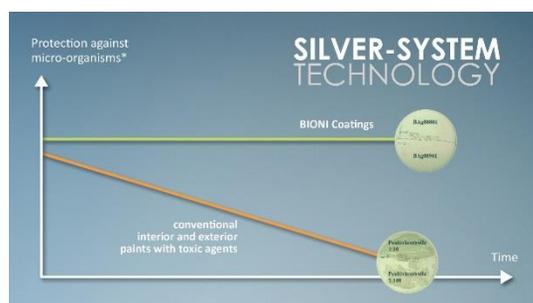
The PROBLEM of anti-mould paints

Fact: Conventional interior paints that have film preservatives can do little to counteract microbial colonization in the long term. Actually, the active ingredients employed in these products are “used up” precisely in high-traffic areas after a short period of time. What remains is an unprotected paint coat that can be affected by mould within a short time.

BIONI® - the intelligent SOLUTION when there are mould problems

Based on the latest scientific knowledge, BIONI has been able to develop interior coatings that, on the one hand, have long-term properties against mould contamination and, on the other hand, comply with the highest requirements made to indoor air hygiene safety.

This is achieved by a patented **SILVER SYSTEM TECHNOLOGY** developed jointly with the **Fraunhofer Institute for Chemical Technology (ICT)**. The system is combined with siliceous light fillers that influence the microclimate on the coating surface to the disadvantage of the fungal spores. This makes BIONI interior coatings ideal for use in rooms prone to humidity and mould colonization because of their clear advantage over conventional wall paints and coatings.



Tested by ADVISAN Dr. Missel GmbH

TÜV-TESTED and recommended for indoor climates

An important feature of BIONI® interior coatings is – in addition to their unique resistance against mould contamination – their indoor climate hygiene safety, confirmed (among other things) in extensive tests performed by the Rhineland/LGA German Technical Inspection Association (TÜV). Our products have been awarded the demanding Rhineland TÜV Signet for being very low-emission wall paints.

Additionally, selected BIONI® interior coatings meet the strict requirements of the German Committee for the Health-Related Evaluation of Building Products (AgBB) and are suitable and certified for use in interiors according to the "approach taken in the health-related evaluation of emissions of volatile organic compounds (VOC and SVOC) from building products.



Application Possibilities and Limitations

BIONI® INTERIOR COATINGS

APPLICATION MATRIX » MOULD RENOVATION



BIONI HYGIENIC®



BIONI NATURE®

CAUSES OF MOULD INFESTATION

MOISTURE SOURCE / EXAMPLES

Constant high humidity level

(humidity between 70-99%)

- increased moisture production in interior rooms (e.g. through cooking, showering, indoor plants etc.)
- incorrect or insufficient airing (e.g. windows permanently tilted open)
- ventilation openings too small
- etc.



suitable

Condensation occurring on the building element surface

(humidity >100%)

- insufficient thermal insulation (cold outer walls)
- (geometric) thermal bridges
- increased resistance to thermal transfer (e.g. due to placing of large pieces of furniture close to exterior walls)
- etc.



useful interim solution

Moisture penetration of building elements

- rising damp
- façade inadequately protected against rain
- leaks in roof
- cracks in building exterior shell
- water damage
- etc.



not suitable as sole measure

Interior coatings are not adequate as the sole solution to mould issues arising from moisture penetration in the wall. First, the causes of the moisture penetration must be identified and suitable renovation measures undertaken. Only after these steps is it possible and useful to apply BIONI interior coatings to prevent mould infestation.

Step by step to success

TYPE AND EXTENT OF MOULD CONTAMINATION

WORK STEPS	PRODUCTS	SLIGHT/SUPERFICIAL CONTAMINATION	STRONG CONTAMINATION OF WALLPAPER AND/OR PLASTER
STEP 1 Surface preparation	BIONI CLEAN Disinfectant 	<ol style="list-style-type: none">1. Spray BIONI CLEAN on a cloth and wipe the mould-contaminated surface clean.2. Afterwards, spray BIONI CLEAN directly on the affected area and let it act for 2-4 hours (do not breathe the aerosol particles!).3. Later, brush off or scrape off the visible mould layer with a wet cloth and allow it to dry.4. Then apply BIONI CLEAN once again beyond the mouldy stain edges. Allow it to dry on the surface. Do not wash again. Depending on the severity of the fungal contamination, the steps can be repeated if necessary.	<ol style="list-style-type: none">1. Spray BIONI CLEAN on a cloth and wipe the mould-contaminated surface clean.2. Remove contaminated wallpaper.3. If the plaster behind it is also contaminated by mould, remove the damaged plaster spots well and coat them with a suitable system for the containment of the fungal biomass (e.g. BIONI SYSTEM).4. Then (after removal of the old contaminated layers) apply BIONI CLEAN once again beyond the mouldy stain edges. Allow it to dry on the surface. Do not wash again. Depending on the severity of the fungal contamination, the steps can be repeated if necessary.5. Afterwards, renew the removed plaster layers and if necessary cover with wallpaper again.
STEP 2 First coat	BIONI NATURE® or BIONI HYGIENIC® 		first coat with BIONI NATURE® / BIONI HYGIENIC® interior coating (undiluted) (apply 1 coat undiluted)
STEP 3 Final coat	BIONI NATURE® or BIONI HYGIENIC® 		final coat with BIONI NATURE® / BIONI HYGIENIC® interior coating (apply 1 coat undiluted)

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