

# From mold investigation to countermeasures

Kalmor Pro Service Team



# About mold

The word "mold" is generally disliked, but it is a beneficial existence that is closely related to human life such as food and medicine. However, although the mold is almost harmless in a general environment, depending on the number and type of mold, it may have a negative effect on the human body.

## ◆ What is mold?

Mold is technically the word "fungus" .

And it has the same cellular structure as humans, called "eukaryotes", which are the same as hu

## ◆ How does mold grow?

Mold is usually invisible. However, it is universally present in the atmosphere that humans breathe. In other words, humans live with mold on a daily basis.

However, when the mold becomes visible,

- 1. Implantation:** When mold in the air comes into contact with the material and takes root, a colony is born.
- 2. Reproduction:** Reproduction is carried out using temperature, humidity, and organic nutrients.
- 3. Diffusion:** When spore formation above a certain level is completed, the spores are blown away. It multiplies in this flow and becomes a visible form.

## ◆ Does mold spread?

Mold spores are very small, 2~10  $\mu\text{m}$ , and are not visible visually by spores alone. Also, because it is very light, It soars up due to a little wind and air current, and floats in the air for a long time. Therefore, if there is an air flow even in a slight gap, mold will spread.



# About mold

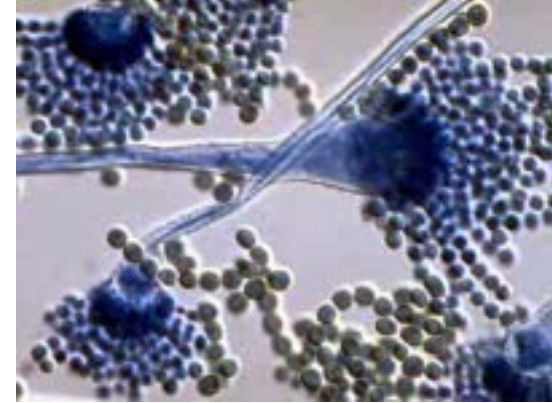
## ◆ Is mold bad for the body?

Fermented products such as soy sauce and natto are made by mold. In other words, we are ingesting it on a daily basis,

Mold is not necessarily dangerous.

However, if a certain number of bacteria or a specific type of mold occurs, it may affect the human body.

Typical diseases include summer-type irritable pneumonitis, Aspergillus syndrome, and sinus mycosis.



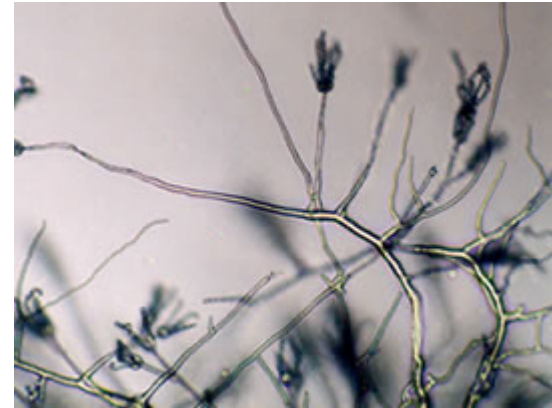
## ◆ What is the effect of mold on building materials?

Mold uses organic matter as one of its nutrients for breeding.

Therefore, depending on the type of building material, if it is left as it is, it may cause deterioration, decay, and rot of the material itself.

However, since it takes a considerable time to cause a decrease in strength, in general, even if several years have passed since occurrence

It is said that it does not weaken the strength itself.



## ◎ Materials that are easily deteriorated by mold

Gypsum board, natural wood, glass wool insulation, birchboard, general plywood

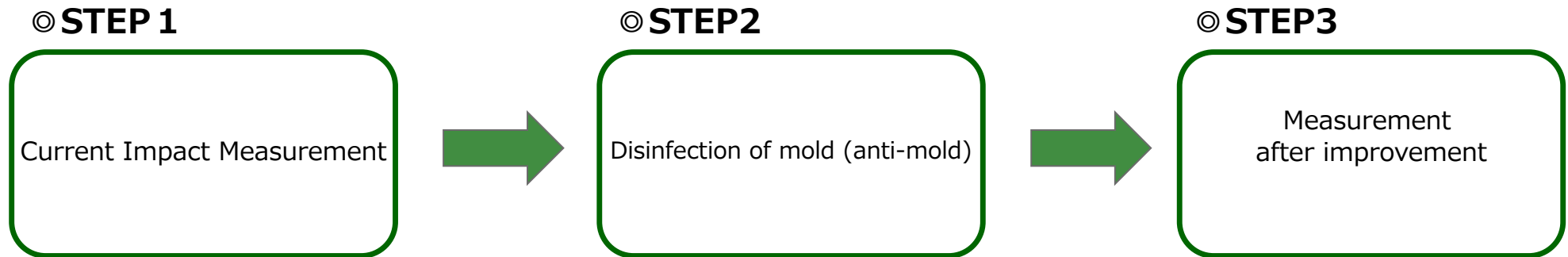
## ◎ Materials that are difficult to deteriorate (or do not deteriorate)

Concrete, steel frame, rebar, electrical wiring, plastic, PVC, etc.

# If mold occurs ~Flow and way of thinking until resolution~

In condominiums and detached houses, mold may occur accidentally due to water leakage, rain leakage, etc. On the other hand, water leaks and rain leaks can be improved by repair work, etc., but if mold that has occurred is left untreated, depending on the situation, it will be at a level that affects the human body, and many cases will cause problems to increase.

## 1. Flow to countermeasures

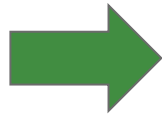


# If mold occurs ~Flow and way of thinking until resolution~

## ◎ Details of STEP1 "Bacterial Number Measurement"

The number of bacteria is measured mainly by selecting a suitable method from two types.

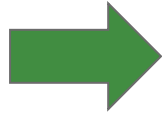
Collision method



The most consistent food used in microbiology testing is also used. It is also stipulated in the JIS standard as a high measurement method. This method mainly measures the number of molds in space.



Wipe method



In small places where the surface of the material and the equipment of the collision method do not enter, it is possible to collect by the wiping method. In this case, the number of bacteria does not appear, but the presence or absence of mold can be determined.



When measured by the wiping method, the presence or absence of mold is judged from the inoculation of the medium and the culture result.



← mold



← No mold

# If mold occurs ~Flow and way of thinking until resolution~

## ◎ Details of STEP2 "Disinfection and mold prevention work"

The mold that has occurred can be improved by disinfecting. Kalmor uses two types of improvement methods depending on the situation.

### Sterilization with chemicals

Since it becomes Sterilization by direct contact with the disinfectant, a high effect is definitely exhibited.

Pressure accumulating sprayers, spray bottles, etc. can be easily constructed.

**Propa**stop



### Sterilization with ozone

Sterilization is possible even in a narrow space where chemicals cannot reach.

Due to the oxidative action of ozone, the smell of mold can also be deodorized.



# If mold occurs ~Flow and way of thinking until resolution~

## ◎ Details of STEP3 "Bacterial Number Measurement"

We measure at the same place as before improvement, verify the effect, and compare it with the guideline.  
In addition, by leaving it in the numerical value, it will be shared by the related parties and it will be proof of reassurance.

◆ Example of measurement results (May 2019, measurement before and after rain leak recovery)

No.	Measurement point	PDA medium		DG18 Medium		Average number of bacteria after improvement	Final Assessment
		Before	After	Before	! "#\$%		
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※cfu/m<sup>l</sup> = Pcs/m<sup>3</sup>

※PDA medium : For molds that prefer high humidity

※DG18 medium : For molds that prefer low humidity

! "	# \$	%&
'	6B <sup>l</sup> CD	()*+, )-, *. . / O1 2314)*5 +6 +))//
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777	DE <sup>l</sup> FG	H+, @*3/ I 8*, : *+)6: ; 2*12)* >+, : +8* . *3-1B. >1, . *JB*, >*. /

# Inquiries

In addition to mold-related work, we are also taking the following measures.

- Odor survey
- Invasion route investigation
- Deodorizing work with deodorizer
- Countermeasure work from component analysis of sick building
- Design and sales of deodorizers
- Sales of commercial deodorants and deodorizers
- Consultation on deodorization measures
- Odor consultant for factories

The logo for KALMOR, featuring the word "KALMOR" in a bold, blue, sans-serif font with a registered trademark symbol.

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