

# DNA Analysis of Building

## DNA Mould Test



**Address** Hofsstaðaskóli, Garðabær

Case nr. 3.161.319

Requester Mannvit hf, Alma Dagbjört

Lab nr. 2022003690

Test ID 6906 og 6907

Sample date 02.11.2022

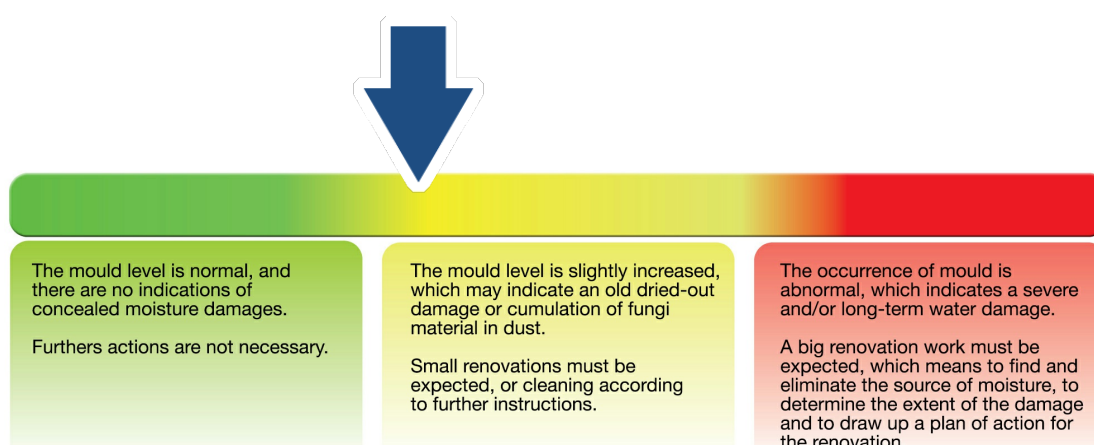
Receipt date 10.11.2022

Analysis date 17.11.2022

DNA tests may reveal whether there are microorganisms (mould) in dust originating from moisture damaged building materials or concealed water damages. Microbiologic material from concealed constructions may over time be released to the residential zone, where it will sediment with the dust. The result of the DNA analysis is an indication of the extent of which the room is affected by microbiologic material.

## CONCLUSION

On the basis of the analysis results for the test made from class room 123, Hofsstaðaskóli, Garðabær, our evaluation is that the rate of mould in the building is somehow above the normal, expected level for dry, clean and undamaged buildings. When looking at the mould species there are relatively few moisture damage indicators and a relatively big quantity of so-called outdoor mould, accumulating in dust. No occurrence of mould indicates that the indoor environment is effected by severe water damages. The few moisture damage indicators present in the test may be originating from small areas of condensation on walls, e.g. cold basement walls or from an old, small and dried up damage.



## RESULT

### Mængden af organismer pr. cm<sup>2</sup>

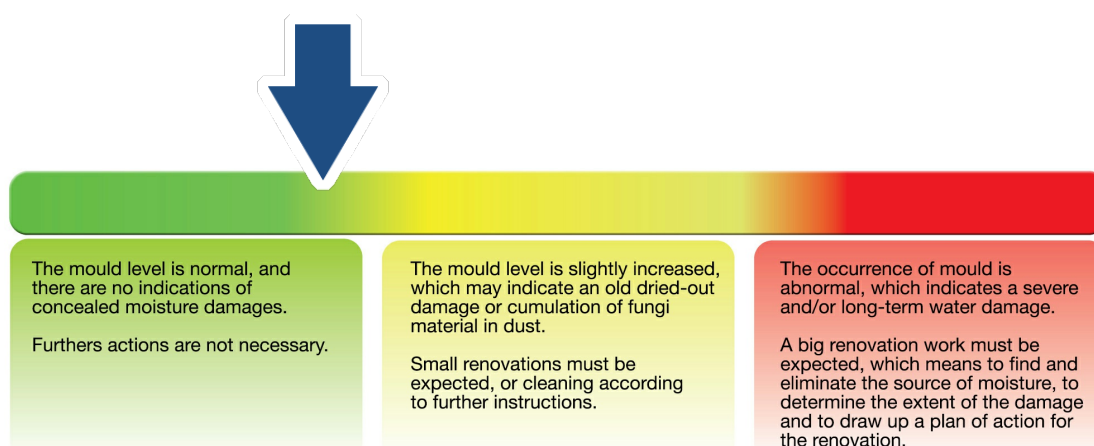
<i>Total antal skimmelsvamp</i>	33625	100,00%
<i>Wallemia sebi</i>	0	0,00%
<i>Cladosporium cladosporioides</i>	303	0,90%
<i>Cladosporium herbarum</i>	400	1,19%
<i>Cladosporium sphaerospermum</i>	344	1,02%
<i>Mucor/Rhizopus grp.</i>	0	0,00%
<i>Rhizopus stolonifer</i>	0	0,00%
<i>Acremonium strictum</i>	0	0,00%
<i>Aspergillus og Penicillium arter</i>	3700	11,00%
<i>Aspergillus fumigatus</i>	88	0,26%
<i>Penicillium chrysogenum</i>	0	0,00%
<i>Tricoderma viride</i>	0	0,00%
<i>Aspergillus glaucus</i>	0	0,00%
<i>Aspergillus niger</i>	0	0,00%
<i>Aspergillus versicolor</i>	871	2,59%
<i>Alternaria alternata</i>	0	0,00%
<i>Ulocladium chartarum</i>	0	0,00%
<i>Stachybotrys chartarum</i>	0	0,00%
<i>Chaetomium globosum</i>	0	0,00%
<i>Streptomyces</i>	0	0,00%

The evaluation is based on the assumption that the test has been made correctly according to OBH's guide lines.

DNA tests may reveal whether there are microorganisms (mould) in dust originating from moisture damaged building materials or concealed water damages. Microbiologic material from concealed constructions may over time be released to the residential zone, where it will sediment with the dust. The result of the DNA analysis is an indication of the extent of which the room is affected by microbiologic material.

## CONCLUSION

On the basis of the analysis results for the test made from class room music 117, Hofsstaðaskóli, Garðabær, our evaluation is that the rate of mould in the building is somehow above the normal, expected level for dry, clean and undamaged buildings. When looking at the mould species there are relatively few moisture damage indicators and a relatively big quantity of so-called outdoor mould, accumulating in dust. No occurrence of mould indicates that the indoor environment is effected by severe water damages. The few moisture damage indicators present in the test may be originating from small areas of condensation on walls, e.g. cold basement walls or from an old, small and dried up damage.



## RESULT

### Mængden af organismer pr. cm<sup>2</sup>

<i>Total antal skimmelsvamp</i>	22808	100,00%
<i>Wallemia sebi</i>	0	0,00%
<i>Cladosporium cladosporioides</i>	334	1,46%
<i>Cladosporium herbarum</i>	659	2,89%
<i>Cladosporium sphaerospermum</i>	247	1,08%
<i>Mucor/Rhizopus grp.</i>	0	0,00%
<i>Rhizopus stolonifer</i>	0	0,00%
<i>Acremonium strictum</i>	0	0,00%
<b><i>Aspergillus og Penicillium arter</i></b>	<b>2630</b>	<b>11,53%</b>
<i>Aspergillus fumigatus</i>	0	0,00%
<i>Penicillium chrysogenum</i>	0	0,00%
<i>Tricoderma viride</i>	0	0,00%
<i>Aspergillus glaucus</i>	0	0,00%
<i>Aspergillus niger</i>	0	0,00%
<i>Aspergillus versicolor</i>	0	0,00%
<i>Alternaria alternata</i>	24	0,10%
<i>Ulocladium chartarum</i>	0	0,00%
<i>Stachybotrys chartarum</i>	0	0,00%
<i>Chaetomium globosum</i>	0	0,00%
<i>Streptomyces</i>	0	0,00%

The evaluation is based on the assumption that the test has been made correctly according to OBH's guide lines.

Contact the undersigned regarding questions to the report

Med venlig hilsen

Tina Eckardt

Tina Eckardt  
Laborant  
OBH Rådgivende Ingeniører  
Environment and Health

## ANALYSIS METHOD

The analysis was developed by EPA, USA's Environmental Protection Agency (pat 6 387 652). The organisms are washed out of the test, and the DNA is extracted. Accordingly, the DNA is amplified in a sequential PCR process, until the light from an attached fluorescence molecule can be seen in the detector. The number of sequences are calculated and compared to a synthetic standard DNA, after which the number of original DNA sequences are calculated. As the DNA is unique for any organism the species and quantity of specific organisms can be determined. By this precise method you will rapidly be informed how much mould, respective indicator organisms which the test contains per square unit.

## ANALYSIS EXPLANATION

The above evaluation applies for the test made, and not for the building as such. The analysis response should always be included as part of a total evaluation of the conditions on site together with other observations and measurements. The responsibility for correct testing always lies with the tester. Evaluations and good advice given here or in connection with interpretation of these results apply for the normal cases and are based on the assumption that the test is representative and made according to OBH's guide lines.

## TAKING A DUST TEST

The purpose of the test is to evaluate whether in the indoor air there are microorganisms to indicate moisture damaged building parts. Mould releases particles, spores, cells, and other fungus components containing DNA, to the air. These microparticles float in the air and are sedimented with dust in the living area. Collecting dust is thus an expression of whether the air of the room has been effected by particles from mould over an extended period of time.

## INDICATION OF QUANTITY

The DNA analysis distinguishes between 20 groups/species.

The test result states the number of DNA sequences for respective species and groups per cm<sup>2</sup>.

Any colour markup states the level of each species or group, deviating according to the levels of dry, clean and undamaged buildings.

Yellow	Above normal
Orange	Far above normal
Red	Very far above normal

## HEALTH

Mould in our indoor environment may affect our health, most commonly with respiratory irritation. Further symptoms are irritation of eyes, nose and upper respiratory tract, headache, fatigue, coughing, and rashing. These symptoms will be more severe for persons with hay fever and asthma. Asthmatic symptoms may occur in connection with a long-term stay in an indoor environment with massive mould problems. The DNA result does not reveal anything about the health risk of residing in the building.

## THE HEALTH DAMAGING EFFECT

In order to evaluate the health risk of residing in a building, a construction technical and healthcare evaluation must be made. According to the Danish National Board of Health the health risk is among others characterized by the unhealthy circumstances as well as the moisture and mould conditioned health problems of the residents/users.

## READ MORE

[www.obh-gruppen.dk](http://www.obh-gruppen.dk)  
[www.sst.dk](http://www.sst.dk)  
[www.astma-allergi.dk](http://www.astma-allergi.dk)  
[www.indeklimaportalen.dk](http://www.indeklimaportalen.dk)