

Rijnder MIER
Official expert for air measurements
Am Alten Brunnen 8b
85659 Forstern
Tel.08124 4436094
Fax 08124 4436095
E-Mail mier@mier-rein.de



**Impact from the IonFlow Surface air purifier on mold concentrations in the office on
12 and 13 september 2009**

TASK DEFINITION

- A) Determine if molds are present.
- B) Identification of available molds.
- C) Find out if the mold concentration can be reduced by using the IonFlow Surface air purifier.

A microbial reference measurement (accomplished with a microbial particle sampler) was performed just before turning on the air purifier in the office.

DECLARATION

- A1) The office has been intensively ventilated one hour before the air purifier was turned on.
- A2) There was no visible mold contamination in the office.
- A3) Molds could not be smelled.

SAMPLING

Sampling procedure

- The air sampling is performed according the DIN ISO 16000-16 standards.
- Impactor methode
The microbial sampling has been done with an impactor (MBASS 30) of the company Holbach.
- The impactor MBASS 30 is equipped with a jet classification stage LKS30.
Serial number of the impactor: 52M0078.
- Air sampling volume: 100 litre per agar plate.
- Used agar plates: the qualified medium to verify indoor molds is the DG18 agar (Dichloran-Glycerin).

The impactor stage LKS30 is designed to detect air cultivable spores.

Sampling incidents or sample interruptions did not occur.

5 seconds waiting time has been programmed prior to start the air sampling.

The microbial particle sampler was placed in the middle of the office on a height of 135 cm. The surface of the office is 14 m². The volume is 35 m³.

VALIDATION OF THE LABORATORY ANALYSIS

Laboratory analysis, methode:

The collected Dichloran-Glycerin-(DG 18) agar plates were incubated at 24°C ± 1°C .

After 2,3 and 5 days the agar plates were analysed. The colony count was determined and they were differentiated.

Foilcontact preparations were made, stained with a blue lactophenol solution and microscopical analyzed.

RESULTS OF THE LABORATORY ANALYSES

12 September 2009: Mold reduction after **one** hour IonFlow operation.

Sample: 1 (after ventilation)

and

sample 2 (after 1 hour operation)

DG 18 24°C sample 1

DG 18 24°C sample 2



air purifier off
46 colonies/agar plate

particles/litre in the air(> 0,5 µm) 12.523



air cleaner on
16 colonies/agar plate

particles/litre in the air(> 0,5 µm) 5.311

13. September 2009: Mold reduction after **three** hours IonFlow operation.

Sample: 1 (after ventilation)

and

sample 2 (after 3 hours operation)

DG 18 24°C sample 3

DG 18 24°C sample 4



air purifier off
42 colonies/agar plate

particles/litre in the air(> 0,5 µm) 3.831



air cleaner on
5 colonies/agar plate

particles/litre in the air(> 0,5 µm) 1.060

SUMMARY

65% of the existing molds and spores are eliminated after one hour IonFlow air purifier operation.
The particles in the air are reduced by 57% in one hour.

88% of the existing molds and spores are eliminated during IonFlow air purifier operation after three hours.

The particles in the air are reduced by 72% within three hours.

The IonFlow air purifier could eliminate the molds and the spores very good in a short period of time.

R. Mier,

Forstern, 26 november 2009