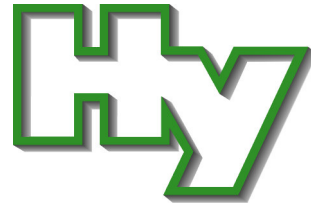


# Hygiene-Institut des Ruhrgebiets

Institut für Umwelthygiene und Toxikologie

Director: Prof. Dr.rer.nat. Lothar Dunemann

Legal Entity: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V.



Hygiene-Institut · PO Box 10 12 55 · DE 45812 Gelsenkirchen · Germany

D. Ellinas Factory Products Ltd  
14 Demokratias, Moutayiaka  
4527 Limassol  
Cyprus

Address:  
Rotthausener Str. 21, DE 45879 Gelsenkirchen

Switchboard +49 (0)209 9242-0  
Direct +49 (0)209 9242-290  
Telefax +49 (0)209 9242-222  
E-Mail s.horn@hyg.de  
Internet www.hyg.de

Our reference: W-335513e-20-Ho  
Contact person: Dipl.-Ing. (FH) S. Horn

Gelsenkirchen, 02.11.2020

## TEST REPORT

Test of the microbial metabolism pursuant to DIN EN ISO 846 (08/2019), method A

**Client:** D. Ellinas Factory Products Ltd  
14 Demokratias, Moutayiaka  
4527 Limassol

**Ordering Date:** Written order on 03.08.2020

**Test material:** "Dellinas PVC Foam white No 1"

**Description of the test objects:** Dark-grey plastic plates

**Size of the test objects:** 5 cm x 5 cm x 1,2 cm

**Date of receipt of test samples:** 16.09.2020

**Commencement of tests:** 23.09.2020

**Case handler:** Dipl.-Ing. (FH) S. Horn

**Our reference:** W-335513e-20-Ho

**Scope of the report:** 4 pages

Our general terms and conditions apply (<http://www.hyg.de>). The validity of our test report assumes a coexisting quality of the test material, product composition and processing.

The certificate shall not be reproduced, except in full, without written approval of the Institute.

**Legal Entity:** Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V., **Register:** VR 519 Local Court Gelsenkirchen (Germany); **VAT ID:** DE125018356 **Directorate:** Prof. Dr. Jürgen Kretschmann (Head), Dr. Emanuel Grün, Dr. Dirk Waider, Joachim Löchte, Prof. Dr. Lothar Dunemann (Executive Member).



## 1. Implementation

Testing was performed pursuant to DIN EN ISO 846 „Evaluation of the effect of microorganisms on synthetic materials“, method A. The evaluation was carried out by visual assessment.

Method A is suitable to assess the resistance of plastic to fungal attack in absence of organic contaminants.

The specimens were disinfected before the test with an ethanol-water mixture (mass ratio 70:30).

Preparation of a spore suspension with the following test fungi:

<i>Aspergillus niger</i>	DSM 1957
<i>Chaetomium globosum</i>	DSM 1962
<i>Paecilomyces variotii</i>	DSM 1961
<i>Penicillium pinophilum</i>	DSM 1944
<i>Trichoderma virens</i>	DSM 1963

The test specimen were exposed to the spore suspension with the test fungi. Five parallel samples of the test specimen were stored individually in petri dishes. These petri dishes were stored into a container that contains a water reservoir which ensures the humidity as you can see below.

In addition, three test specimens made of stainless steel are also inoculated and incubated as a negative control.

There is also a batch of 2 parallel sterile samples, onto each of which 3 ml of ethanol-water mixture with a mass ratio of 70:30 is pipetted.

The samples are incubated for 4 weeks at a temperature of  $29 \pm 1$  ° C and a relative humidity of  $\geq 95\%$ .

Visual inspection with the naked eye and with the help of a stereomicroscope (at 50x magnification) the test specimens for mold growth after 4 weeks and assessment of the fungus growth.

## 2. Assessment

The microbial growth on the test specimens was evaluated according to Table 1.

Table 1: Evaluation of fungal growth (according to DIN EN ISO 846)

Intensity of growth	Rating
0	No growth visible when viewed microscopically.
1a	No growth with the naked eye, but clearly visible under the microscope. Overgrown up to 25% of the sample surface.
1b	No growth with the naked eye, but clearly visible under the microscope. Overgrown up to 50% of the sample surface.
1c	No growth with the naked eye, but clearly visible under the microscope. Overgrown over 50% of the sample surface.
2	Growth visible to the naked eye, overgrown up to 25% of the sample surface.
3	Growth visible to the naked eye, overgrown up to 50% of the sample surface.
4	Considerable growth, overgrown over 50% of the sample surface.
5	Strong growth, overgrown entire sample surface.

## 3. Results

Table 2: Test results

Examination material	Number of squares with microbial growth	Growth intensity of the microbial growth according to table 1
„Dellinas PVC Foam white No 1“	7 out of 64	1a
	6 out of 64	1a
	0 out of 64	0
	1 out of 64	1a
	2 out of 64	1a

On one of the five specimens pursuant to method A, no fungal growth could be identified when viewed microscopically.

On the other four specimens fungal growth could be identified under the microscope but not by the naked eye. Here up to 25 % of the sample surface was overgrown.

Gelsenkirchen, 2<sup>nd</sup> of November 2020

The Director of the Institute

p.p.



(Dipl.-Ing. (FH) S. Horn)

Head of department

Hygienic Building Technology