

# Test

Air permeability of installation foam

## Test Report

Nr. 13-002246-PR01  
(PB-K05-02-en-01)



(based on 105 31680U dated 09.05.2006)

Client **Adolf Würth GmbH & Co. KG**  
**Reinhold-Würth-Straße 12-17**  
**74653 Künzelsau**  
**Germany**

### Basis

Test based on DIN 18542 : 1999-01 \*), Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics, Clause 7.2, Air permeability \*)

Test standard:

EN 12114 : 2000-03

Test report No. 105 31680U dated 09.05.2006

\*) See explanations in test report

Product	Installation foam (in-situ foam)
Designation	WÜRTH PUR logic TOP
Dimensions	Joint cross section: 20 mm x 60 mm
Material	One-component, moisture curing PU-based installation foam
Special features	The air permeability of the installation foam was determined in an "ideal" joint and in new condition on the basis of DIN 18542, Clause 7.2. The results cannot be used to demonstrate air tightness of linear connecting joints (gunned with foam) in practical end-use applications.

### Representation of test specimen



Results **Air permeability in new condition**  
 **$a < 0.1 \text{ m}^3 / [\text{h} \cdot \text{m} \cdot (\text{daPa})^{2/3}]$**

### Instructions for use

This test report serves to demonstrate the above material property

### Validity

The data and results given relate solely to the tested and described specimen.

The effects of weathering and ageing have not been covered.

### Notes on publication

The ift Guidance Sheet "Conditions and Guidance for the Use of ift Test Reports" applies.

The cover sheet can be used as an abstract.

### Contents

The report comprises a total of 5 pages.

- 1 Object
- 2 Procedure
- 3 Results

ift Rosenheim  
19.09.2013

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## 1 Object

### 1.1 Description of test specimen

The description is based on inspection of the test specimen at the **ift** Rosenheim. Item designations/numbers as well as material specifications were given by the client.

Product designation	WÜRTH PUR logic TOP
Material / Base	One-component, moisture curing PU-based installation foam (in-situ foam), colour: grey
Density	18 kg/m <sup>3</sup>
Cell structure	Fine to medium sized pores, mainly closed pores

For more technical details refer to the Technical Data Sheet of the client

For testing the installation foam was gunned into a test apparatus composed of square aluminium tubes, the specimens used for testing the air permeability of linear joints in accordance with DIN 18542, Clause 7.2 and Fig 1. Spacer disks inserted between the square tubes ensured uniform joint width of 20 mm. Joint depth was 60 mm.

3 joints of each 1,000 mm joint length were prepared for the test. After the time specified by the manufacturer to achieve full loading capacity, the installation foam protruding from the joint was cut off on both sides flush with the joint.

### 1.2 Representation of test specimen

The photographs were taken at the **ift** during testing.



**Photo 1** Joints gunned with foam in test apparatus for linear joints in accordance with DIN 18542, mounted on window test rig



## 2 Procedure

### 2.1 Sampling

The test specimens were selected by the original client.

Delivered on	19 December 2005, by the original client.
Preparation	The installation foam was gunned by the staff of the testing body into the test apparatus on 16 January 2005. Prior to gunning the foam, the test apparatus and the cans containing the foam were conditioned at standard atmosphere (23 C, 50 % rel. humidity) for at least 1 week. During gunning the installation foam, the joint faces and the foam surfaces were wetted with water sprayed from a spray bottle. Prior to the test, the test apparatus including the foamed joints was also stored at standard atmosphere for at least one week.

### 2.2 Method/s

Basis	
DIN 18 542 : 1999-01	Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics - Impregnated sealing tapes - Requirements and testing (subtest as per Clause 7.2) Since there is no comparable standard known for the objective of testing this installation foam, the test set arrangement was based on this standard.
EN 12114 : 2000-03 *)	Thermal performances of buildings - Air permeability of building components and building elements - Laboratory test method
Boundary conditions	as per standard specifications

### 2.3 Test apparatus

Window test rig	Device No.: 22200
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### 2.4 Procedure

Date/period	25 January 2006
Test engineer/s	Wolfgang Jehl, Dipl.-Ing. (FH)

Test sequence

Fig. 2 below shows the test sequence (pressure steps) according to EN 12114 to determine the air permeability.

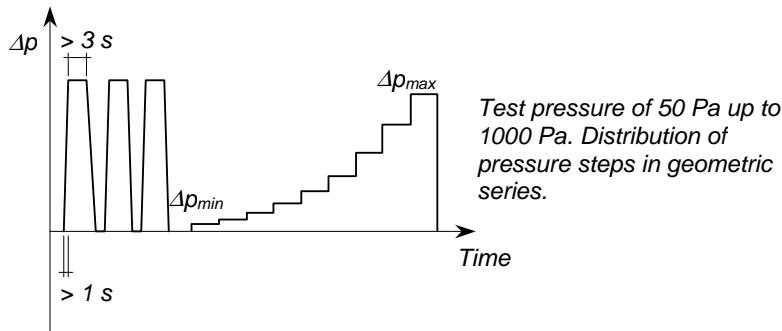


Fig. 2 Test sequence (pressure steps)

Leakages of the test arrangement were determined by comparative measurement (zero measurement) during which the joints to be tested were masked air-tight. These leakages were then taken into account for the subsequent air permeability test of the joints. Thus only the air flow through the joints to be tested is determined.

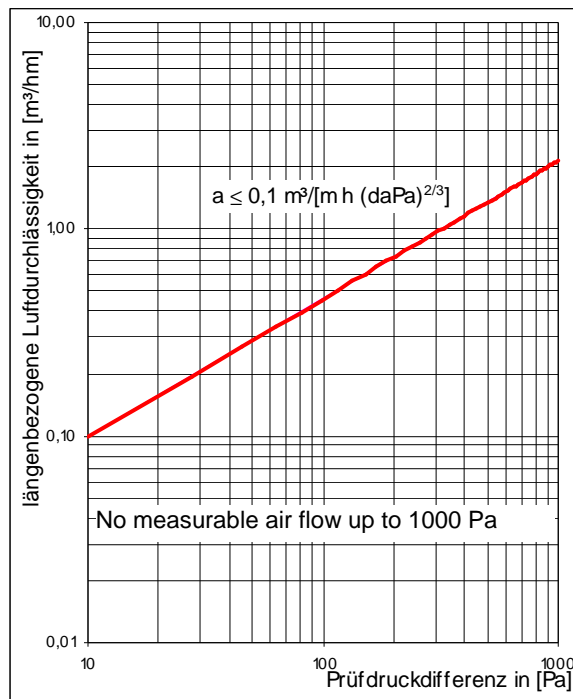
### 3 Results

The measurement results are used to determine linear air permeability [ $\text{m}^3/(\text{h}\cdot\text{m})$ ] up to a test pressure difference of 1,000 Pa. Table 1 lists the values and diagram 1 shows the plotted values. Diagram 1 shows also, for orientation, the requirements for evaluation of air permeability of linear joints as per DIN 4108, Part 2, expressed by the air permeability  $a$  where  $a \leq 0.1 \text{ m}^3 / [\text{h}\cdot\text{m}(\text{daPa})^{2/3}]$ .

Table 1 Results of air permeability test

Pressure steps	Pa	50	73	106	154	225	325	473	688	1000
Air flow	$\text{m}^3/\text{h}$	*)								
	$\text{m}^3/\text{h}\cdot\text{m}$	-	-	-	-	-	-	-	-	-

\*) No measurable air flow. Measuring accuracy of test arrangement was  $0.1 \text{ m}^3/\text{h}$ .



**Diagram 1** Linear air permeability of installation foam in an "ideal" joint of 20 mm x 60 mm cross section.

The measurement results were obtained of joints in new condition with uniform joint widths and smooth, parallel joint faces, i.e. from an "ideal" joint. The effects and changes resulting from weathering and/or ageing, the different nature of the joint faces and any joint movements, have not been taken into account. Thus the results cannot be applied to any linear connecting joints (gunned with foam) in end use applications

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