Evidence of Performance

Air permeability of installationfoam

Test Report

No. 12-001850-PR01

(P B - K 0 5 - 0 2 - e n - 0 1)

Client	Cantex Rubber Milrooijseweg 47a 5258 KG, Berlicum The Netherlands
Product	Installation foam (in-situ foam)
Designation	Cantex LDP-1000
Dimension	Joint cross section 20 x 60 mm²
Material	One-component, moisture curing PU-based installation foam
Special feautres	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.

Result	Air permeability in new condition
	$a < 0.1\ m^3 / [h \cdot m \cdot (daPa)^{2/3}]$ no measurable air flow

ift Rosenheim

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Construction Product Testing

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 12-001850-PR01 (PB-K05-02-de-01) dated 19.10.2012

*) See explanations in test report

Representation of test specimen

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

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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	Cantex LDP-1000
Material / Base	One-component, moisture curing PU-based installation foam (in-situ foam), colour light yellow
Density	14.5 – 16.5 kg/m^3
Cell structure	Fine to medium sized 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, Clause8.2 and photo 5. 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 client.

Delivered on	21 July 2014, by the client
Number	3 cans, including discharger and cleaner.
Registration No.	33005/001
Preparation	The installation foam was gunned by the client of the testing body into the test apparatus on 21 July 2014. 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 (23 °C, 50 % rel. hum idity).

2.2 Method/s

Basis

DIN 18 542 : 2009-07	Sealing of outside wall joints with impregnated sealing tapes made of cellular plastics - Impregnated sealing tapes - Requirements and testing (subtest as per Clause 8.2) 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 equipment

Window test rig	Device No.: 22200

2.4 Testing

Date/Period	29 July 2014
Test engineer	Thomas Stefan, Dipl.-Ing. (FH)

2.5 Test sequence

2.5.1 Test of air permeability

Illustration 1 below shows the test sequence (pressure steps) according to EN 12114 to determine the air permeability

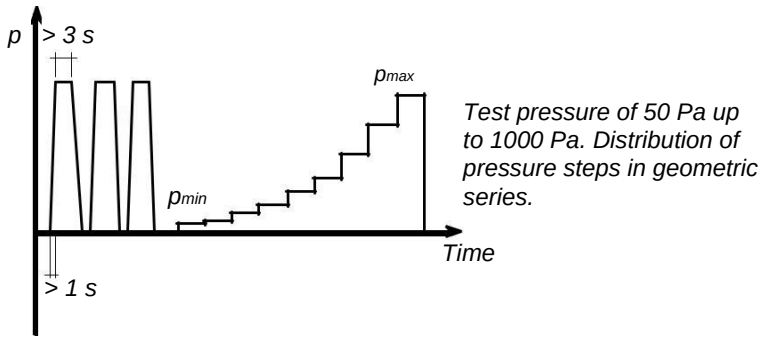


Illustration 1 Test sequence (pressure steps)

The measurement results are used to determine linear air permeability [m³/(hm)] up to a test pressure difference of 1,000 Pa. 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

3.1 Test of air permeability in new condition

The test record lists the values and diagram 1 and 2 shows the plotted values. Diagram 2 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 δ 0.1 m ³ / [h m (daPa)$^{2/3}$].

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.

3.2 Test record

Test record air permeability composite joints

Project No.	12-001850-PR01	**File No.**	12-001850
Basis of test	EN 12114:2000-03 Thermal performance of buildings - Air permeability of building components and building elements - Laboratory test method		
Used test equipment	Pst/022200 - LWW-Prüfstand Fensterprüfstand 1		
Test specimen	Test sequence in accordante to DIN18542, 3 joints in cross section im Querschnitt 20 x 60 mm²		
Test specimen No.	33005-001		
Date of test	29.08.2012		
Testing personnal in charge	Thomas Stefan		
Test engineer	Thomas Stefan		

Information to test configuration / Test method

Test method	There are no deviations to the test method according standard/basis.
Ambient conditions	Temperature 22,1 °C Air humidity 63,6 % Air pressure 968,7 hPa The ambient conditions are in accordance with the standard requirements.

Testing

Partial water vapour pressure	p_w	1691,363961	Pa
Air tightness laboratory cond. Laborbed.	ρ	1,135409021	kg/m³
Air tightness reference cond.	ρ_0	1,1988	kg/m³

Test according to DIN EN 12114

	Width	x	Height	
Dimension of test specimen	977	x	1200	in mm
	Number		Length	
Joint length	3	x	1000	in mm

PRESSURE

3 pressure pulses with 1100 Pa	X

Flow rate (volume) 1	**Zero measurement (joints covered)**								
Pa	50	73	106	154	224	325	473	688	1000
V in m³/h	*)	*)	*)	*)	*)	*)	*)	*)	*)

*) not measurable, V < 0,06 m³/h

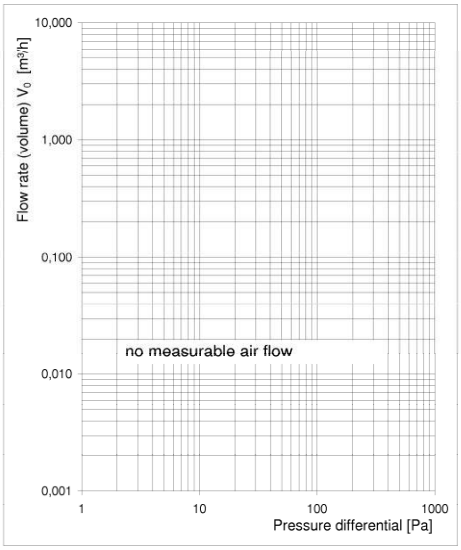
Flow rate (volume) 2	**Joints not covered**								
V in m³/h	*)	*)	*)	*)	*)	*)	*)	*)	*)

*) not measurable, V < 0,06 m³/h

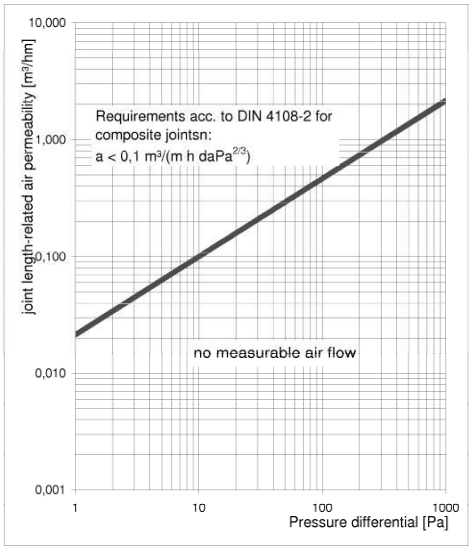
Joint length 3,00 m

Flow rate (volume) 2 - 1	**Air permeability joint**								
Pa	50	73	106	154	224	325	473	688	1000
V in m³/h	*)	*)	*)	*)	*)	*)	*)	*)	*)
V_0 in m³/h	*)	*)	*)	*)	*)	*)	*)	*)	*)
joint length-related in m³/hm	*)	*)	*)	*)	*)	*)	*)	*)	*)

*) not measurable, V < 0,06 m³/h



Graphic 1 Flow rate (volume V_0



Graphic 2 Joint length-related air permeability Q

Results air permeability composite joints

Parameters	Results Value	95%-confidence range	Unit
Air flow rate coefficient C [1)2)]		no measurable air flow	$m^3/(h\ Pa^n)$
Leckageexponent n [2)]		no measurable air flow	--

[1)] Air flow rate through test specimen at a pressure differential of 1 Pa
[2)] C and n after the emperical air permeability equation $V = C \times \Delta p^n$

The composite joint is in terms of DIN 4108-2, Clause 7, requirements a < 0,1 m³/[h m $(daPa)^{2/3}$], air tight

Note:

The test was carried out in an ideal joint. Therefore the material characteristics of the foam was tested .
Thus the results cannot be applied to any linear joints in end use applications.

ift Rosenheim
29.08.2012