Evidence of Performance

Ageing behaviour of insulating glass units as per DIN EN 1279-2

Test Report 17-002666-PR01
(PB-H01-09-en-02)

Client	ZHENGZHOU ZHONGYUAN SILAND HIGH TECHNOLOGY CO., LTD No. 28 Dongqing West St, Zhengzhou Hi-tech Development Zone 450001 Zhengzhou China
Product	Insulating glass units - gas filled
Designation	Insulating glass units - gas filled
Exterior dimensions (W x H)	500 mm x 350 mm
Configuration in mm	4 / 12 / 4
Spacers	Aluminum, PG 12 mm, made by Lisec Shanghai Glass Machinery Co. Ltd.
Sealants	
External	Polysulfide, MF840
internal	Polyisobutylene, MF-DJ910 made by original client (desposited at ift)

The insulating glass unit fulfils the requirements of

DIN EN 1279-2

ift Rosenheim
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Basis

DIN EN 1279-2 : 2003-06; Glass in building - Insulating glass units - Part 2: Long term test method and requirements for moisture penetration

Replaced Test Report No. 17-002666-PR01 (PB-H01-09-en-01) dated 23.10.2017

Instructions for use

This test report serves to demonstrate the moisture penetration of insulating glass units.

It serves as a basis (ITT) for CE-marking according to EN 1279-5.

Validity

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

The long term test does not imply any statement on characteristics regarding performance and quality.

Publishing notes

The **ift**-Guidance Sheet "Conditions and Guidance for the Use of **ift** Test Documents applies.

The cover sheet can be used as abstract.

Contents

The test report comprises a total of 6 pages

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1 Object

1.1 Description of test specimen

Building element	Insulating glass unit, gas filled
Manufacturer	TIANJIN CSG ARCHITECTURAL GLASS Co. Ltd., CHI-Wuqing, Tianjin
Date of manufacture	March 15, 2007
Product designation	Insulating glass units - gas filled
Exterior dimensions (W x H)	500 mm x 350 mm
Total thickness	Approx. 20 mm
Configuration in mm	4 / 12 / 4
Spacers	
Material / Manufacturer	Aluminum, PG 12 mm, made by Lisec Shanghai Glass Machinery Co. Ltd.
Corner connection	2 edges bended 2 edges with plastic corner key, with additional butylation on the spacer back
Desiccant	
Type / Manufacturer	Zeolith 3Å, made by Zhengzhou Fulong New Material Technical Company Ltd.
Amount / Type of desiccant	approx. 60 g / four sides filled
Sealing system	
External	two level
Type / Manufacturer	Polysulfide-based MF840, made by original client (desposited at ift)
Design	thickness of sealant on spacer back: approx. 5.5 mm to 6.0 mm
Internal	
Type / Manufacturer	Polyisobutylene-based, MF-DJ910, made by original client (desposited at ift)
Design	visible width of butyle: approx. 3.5 mm to 4.5 mm application of butyle: 5.1 g/m, on one side
Coating	none
Gas filling of cavity	manufacturers instructions
Type of gas	Argon
Nominal volume	90 %
Closing plug for gas filling	none

The description is based on inspection of the test specimen at the **ift**. Item designations / numbers as well as material specifications have been provided by the original client (desposited at ift).

2 Procedure

2.1 Sampling

The test specimen were manufactured and selected by the original client (desposited at ift).

Number	50 pieces
Delivered on	April 24, 2007
Number of registration	21844

2.2 Methods

Basis

DIN EN 1279-2 : 2003-06	Glass in building, Insulating glass units – Part 2: Long term test method and requirements for moisture penetration.
Boundary conditions	As specified by the standards
Deviation	There have been no deviations from the test method and test conditions

2.3 Test equipment

Cyclic test cabinet	Device No. 22601
Constant climate cabinet	Device No. 22173
Normal climate chamber	Device No. 22040
Balance (moisture content)	Device No. 22534
Furnace	Device No. 22567

2.4 Testing

Date/Period	May 21 to August 20, 2007
by	Irina Hausstetter

3 Detailed results

3.1 DIN EN 1279-2

The initial dew point temperature of all units supplied in new condition was < -60 °C.

Table 1 Moisture content of desiccant

Unit No.	Moisture content of desiccant T in %		Moisture penetration I in %
	T_i		
7	0.9	$T_{i,av}$ = 1.1	
8	1.4		---
9	1.3		---
10	0.9		---
		T_f	
4	---	2.4	6.8
5	---	1.7	3.0
6	---	1.6	2.5
11	---	1.8	3.6
12	---	2.4	6.8
Average values	---	$T_{f,av}$ = 2.0	I_{av} = 4.5

The following symbols were used:

T_i initial moisture content of desiccant
T_{iav} average initial value of moisture content of desiccant
T_f final moisture content of desiccant
T_{fav} average final value of moisture content of desiccant
T_{cav} average standard moisture adsorption capacity of desiccant
I_{av} average value of moisture penetration in %

4 Evaluation

Calculation of the moisture penetration index I_{av} was based on the average standard moisture adsorption capacity of the desiccant T_{cav} = 20 % (DIN EN 1279-2, Annex D, Table D.1).

In summary, the results were as follows:

– Average initial moisture content of desiccant	T_{iav} = 1.1 %
– Average final moisture content of desiccant	T_{fav} = 2.0 %
– Average value of moisture penetration index	I_{av} = 4.5 %
– Maximum individual value of moisture penetration index	I = 6.8 %
– Requirements set out by DIN EN 1279-2 for average value	$I_{av} \leq$ 20 %
– Requirements set out by DIN EN 1279-2 for individual values	I ≤ 25 %

Based on the results listed in Table 1 the insulating glass system

Insulating glass units - gas filled

fulfils the requirements according to DIN EN 1279-2.

5 Summary of test report No. 17-002666-PR01 (PB-H01-09-en-02)

Insulating glass units –
Moisture penetration results according to DIN EN 1279-2

For details, see the test report.

Company:

ZHENGZHOU ZHONGYUAN
SILAND HIGH TECHNOLOGY CO., LTD
No. 28 Dongqing West St,
Zhengzhou Hi-tech Development Zone
450001 Zhengzhou
China

Plant:

TIANJIN CSG ARCHITECTURAL GLASS Co. Ltd.
West Section Fuyuan Road
Development Park
Wuqing, Tianjin
China

System description: Not submitted to test body
Product designation: Insulating glass units - gas filled

Moisture penetration index I_{av} = 4.5 %

System conforms: **YES**

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