

# Evidence of Performance

## Determination of moisture penetration index $I_{req}$ by exposure to short term climate test according to DIN EN 1279-6

Test Report 601 42789/1.1e



Client **EPAL s.a.**  
2 klm Sindos-Halastra  
  
57200 Halastras  
Greece

### Basis

DIN EN 1279-5 : 2005-08;  
Glass in building - Insulating glass units - Part 5 : evaluation of conformity  
DIN EN 1279-6 : 2002-10;  
Glass in building - Insulating glass units - Part 6: Factory production control and periodic tests

Product	Insulating glass unit – gas filled
Designation	Insulating glass unit
Dimensions (W x H) in mm	301 x 502
Configuration in mm	4 / 12 / 4
Spacers	Aluminium, H 6.5 Standard, company Profilglass S.p.A
Sealants	
External	Polysulfide, PS-998R, H.B. Fuller
internal	Polyisobutylene, PIB-969, company H.B. Fuller
Special features	-/-

### Instructions for use

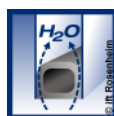
This test report serves to demonstrate the moisture penetration index as part of the factory production control of insulating glass units.

### Validity

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

The short term test does not allow any statement to be made on any further characteristics regarding performance and quality.

The moisture penetration index  $I_{req}$  of the system  
**Insulating glass unit**  
after exposure to short term climate test is



$I_{req} = 5.9 \%$

### Notes on publication

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 report contains a total of 5 page/s

- 1 Object
- 2 Procedure
- 3 Detailed results
- 4 Evaluation

ift Rosenheim  
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## 1 Object

### 1.1 Description of test specimen

Building element	Insulating glass unit, gas filled
Manufacturer	EPAL s.a., GR-57200 Halastras
Date of manufacture	April 2010
Product designation	Insulating glass unit
Exterior dimensions (W x H)	301 x 502
Total thickness	approx. 20
Configuration	4 / 12 / 4
Spacers	
Material / Manufacturer	Aluminium, H 6.5 Standard, company Profilglass S.p.A
Corner connection	4 corner connector made of plastic material (colour white respectively grey); without additional butylation on the corner back.
Desiccant	
Type / Manufacturer	Zeolith 3Å, Phonosorb 558, company Grace
Amount / Type of desiccant	approx. 55 g, four sides filled
Sealing system	two level
External	
Type / Manufacturer	Basis Polysulfide, PS-998R, H.B. Fuller
Design	thickness of sealant on spacer back: approx. 4.5 mm to 5.5 mm
Internal	
Type / Manufacturer	Basis Polyisobutylene, PIB-969, company H.B. Fuller
Design	visible width of butyl: approx: 3.0 mm to 5.0 mm Butyl application on one side: approx. 1.4 g/m
Coating	none
Gas filling of cavity	manufacturers instructions
Type of gas	Argon
Nominal volume	90 %
Closing plug for gas filling	none
Special features	-/-

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 client.



## 2 Procedure

### 2.1 Sampling

The test specimen were manufactured and selected by the client.

Number	4
Delivered on	22 January 2010
Number of registration	27398

The test specimen were manufactured and delivered at the same time as those tested according to DIN EN 1279-2.

### 2.2 Method

Basis

DIN EN 1279-5 : 2003-06: Glass in building - Insulating glass units - Part 5 : Evaluation of conformity.

DIN EN 1279-6 : 2003-05: Glass in building - Insulating glass units - Part 6: Factory production control and periodic tests; Annex B, Clause B.4, Moisture penetration index.

Boundary conditions As specified by the standards.

Deviation There have been no deviations from the test method and test conditions.

### 2.3 Test equipment

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 01 February to 17 March 2010

Testing personnel Irina Hausstetter, Rita Sanftl

### 3 Results

#### 3.1 Determination of total gas concentration

**Table 1** Results of total gas concentration measurement

Unit No.	Measured gas concentration $c_i$ in %	Nominal value of the gas concentration $c_{i,0}$ in %	Difference $c_i - c_{i,0}$ in %
2	91	90	+ 1
3	88	90	- 2
4	91	90	+ 1

#### 3.2 Determination of moisture penetration index $I_{req}$

**Table 2** Moisture content of desiccant

Unit No.	Moisture content of desiccant T in %	Moisture penetration I in %
	$T_i$	
2	2.4	---
4	2.9	
	$T_{i,av} = 2.7$	
	$T_f$	
1	---	3.8
5	---	3.1
Average values	---	$I_{av} = 3.4$

The following symbols were used:

$T_i$  initial moisture content of desiccant

$T_{iav}$  average initial moisture content of desiccant

$T_f$  final moisture content of desiccant

$T_{fav}$  average final moisture content of desiccant

$T_{cav}$  average standard moisture adsorption capacity of desiccant

I moisture penetration index of initial short-term climate test in %

$I_{av}$  average value of moisture penetration

$I_{req}$  moisture penetration index of initial short-term climate test in % increased with 2.5 %

## 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	$T_{iav} = 2.7\%$
– Average final moisture content of desiccant after climate exposure	$T_{fav} = 3.4\%$
– Average value of moisture penetration index of initial short-term climate test	$I_{av} = 3.4\%$
– Moisture penetration index of initial short-term climate test increased with 2.5 %	$I_{req} = 5.9\%$

Based on evaluation of the results given in Table 2, the system

### Insulating glass unit

shows a moisture penetration index of

$$I_{req} = 5.9\%$$

after exposure to the short-term climate test.

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