

# Evidence of Performance

Ageing behaviour of insulating glass units according to  
DIN EN 1279-3



## Test Report

no. 17-002666-PR11  
(PB-H01-09-en-02)

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

### Basis

DIN EN 1279-3 : 2003-05;  
Glass in building – Insulating  
glass units – Part 3:  
Long term test method and  
requirements for gas leakage  
rate and for gas concentration  
tolerances

Product	Insulating glass units - gas filled
Designation	Insulating glass unit with TGI-Spacer
Exterior dimensions (W x H) in mm	352 x 502
Construction in mm	4 / 12 / 4
Spacers	Stainless Steel / Polypropylene, TGI-Spacer, company Technoform Glass Insulation Holding GmbH
Sealants	
External	Basis Silicone, MF881-25HM, original client (desposited at ift)
internal	Basis Polyisobutylene, MF910G, original client (desposited at ift)
Special features	-/-

Replaced Test Report  
No. 17-002666-PR11 (PB-H01-09-en-01) dated 23.10.2017

### Instructions for use

This test report serves to demonstrate the gas leakage rate and gas concentration tolerances of insulating glass units.

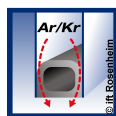
It serves as a basis (ITT) for CE-marking according to EN 1279-5.

### 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.

The insulating glass unit fulfils the requirements of



## DIN EN 1279-3

ift Rosenheim  
27.11.2017

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### 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 pages

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

**Ageing behaviour of insulating glass units according to DIN EN 1279-3**

Test Report 17-002666-PR11 (PB-H01-09-en-02) dated 27. November 2017

Client ZHENGZHOU ZHONGYUAN SILANDE HIGH TECHNOLOGY CO., LTD,  
450001 Zhengzhou (China)**1 Object****1.1 Description of test specimen**

Product	Insulating glass units, gas filled
Manufacturer	Tianjin CSG Architectural Class Co., Ltd Wuqing, Tanjin, China
Date of manufacture	15 <sup>th</sup> March 2014
Designation	Insulating glass unit with TGI-Spacer
Exterior dimensions (W x H) in mm	352 x 502
Total thickness in mm	approx. 20
Construction in mm	4 / 12 / 4 mm
Spacer	
Material / Manufacturer	Stainless steel / Polypropylene, TGI-Spacer, company Technoform Glass Insulation Holding GmbH
Fashioning / Corners / Length connector	4 x bend – including steel straight connector, with additional butylation of joint on spacer back
Desiccant	
Type / Manufacturer	Zeolith 3Å, no further information, Zhengzhou Fulong New Material Technical Co., Ltd
Tc-Value in %	no further information
Amount in g	approx. 20 g
Type of filling	two sides filled
Sealing system	two level
External	
Sealing / Manufacturer	Basis Silicone, MF881-25HM, original client (desposited at ift)
Batch number	A: no further information B: no further information
Thickness of sealant on spacer back in mm	8 - 11
Internal	
Sealing / Manufacturer	Basis Polyisobutylene, MF910G, original client (desposited at ift)
Batch number	no further information
visible butyle in mm	5 - 7
one-sided butylation in g/m	approx. 4.0
Coating	none
Decoating of glazing edge in mm	-/-
Gas filling of cavity	manufacturers instructions
Type of gas	Argon
Nominal volume in %	90
Closing plug for gas filling	-/-
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 original client (desposited at ift).

**Ageing behaviour of insulating glass units according to DIN EN 1279-3**

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Client ZHENGZHOU ZHONGYUAN SILANDE HIGH TECHNOLOGY CO., LTD,  
450001 Zhengzhou (China)

## 2 Procedure

### 2.1 Sampling

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

Number	5
Delivered on	28 <sup>th</sup> May 2014
Number of registration	37150

### 2.2 Methods

#### Basis

DIN EN 1279-3: 2003-05	Glass in building – Insulating glass units – Part 3: Long term test method and requirements for the gas leakage rate and for gas concentration tolerances.
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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
Gas installation with gas chromatograph	Device No. 22503

### 2.4 Testing

Date/Period	16th June 2014 to 1 <sup>st</sup> October 2014
Testing personnel	Miriam Kaube, Jennifer Seyfang, Thomas Eder

**Ageing behaviour of insulating glass units according to DIN EN 1279-3**

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Client ZHENGZHOU ZHONGYUAN SILANDE HIGH TECHNOLOGY CO., LTD,  
450001 Zhengzhou (China)**3 Detailed results****3.1 Results of the DIN EN 1279-3**

The results of the gas leakage rate for the gas type Argon are represented in Table 1.

**Table 1** Results of the gas leakage rate

Sample No.	Gas leakage rate $L_i$ in % a <sup>-1</sup>	measured gas concentration $c_i$ in Vol. %	nominal value of the gas concentration $c_{i,0}$ in Vol. %	Difference $(c_i - c_{i,0})$ in Vol. %
1	0.76	97	90	+7
2	0.84	96	90	+6
Requirements	$L_i < 1.00$ % a <sup>-1</sup>	----	----	The difference must be included within $c_{i,0} (-5/+10)$ Vol. %

**4 Evaluation**

In summary, the results were as follows:

– Measured individual values as per DIN EN 1279-3	0.76 % a <sup>-1</sup> 0.84 % a <sup>-1</sup>
– Requirements set out by DIN EN 1279-3 for at least two individual values	$L_i < 1.00$ % a <sup>-1</sup>

Based on the results listed in Table 1 the insulating glass system Insulating glass units, gas filled fulfils the requirements according to DIN EN 1279-3.

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Client ZHENGZHOU ZHONGYUAN SILANDE HIGH TECHNOLOGY CO., LTD,  
450001 Zhengzhou (China)**5 Summary of test report No. 17-002666-PR11 (PB-H01-09-en-02)**

**Insulating glass units –  
Evaluation of gas leakage rate and gas concentration,  
measured according to DIN EN 1279-3**

For details, see the test report.

Company:

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

Plant:

Tianjin CSG Architectural Class Co., LTD  
Wuqing, Tianjin  
China

System description: Submitted to test body  
Product designation: Insulating glass unit – gas filled

Gas leakage rate and gas concentration:

Applied gas	Argon			
Unit number	1	2	3	4
$c_i$ in %	98	98	97	96
$c_{i,o}$ in %	90	90	90	90
$L_i$ in %/a	nr	nr	0.76	0.84

**ift Rosenheim**  
27.11.2017