

Test report

Test report relating to a glass product according to European standard EN 1279-2, concerning the product marked as: ZEYSI, manufactured by: Zeysi cam ins. san.ve.tic.Ltd. sti

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1 Introduction

1.1 Purpose

The tests have been performed in order to establish whether or not an insulation glass unit with MF 882 silicone sealant meets the requirements of the European standard EN 1279-2 [1].

1.2 Description of the test specimen

Name of the demonstrator	Zhengzhou Zhongyuan Silande High Technology Co. Ltd
Address of the demonstrator	No.28 Dongqing West St., Zhengzhou Hi- Tech Development Zone 45001 Zhengzhou, Henan China
Production plant of the samples	-/-
Line ID where the samples are made	-/-
Production date	-/-
Sampling date	-/-
Trade mark and /or product name	MF 882 two component silicone

Specific

Insulating glass units – Declaration manufacturer	
Manufacturer	Zeysi cam ins. san.ve.tic.Ltd. sti
Address of manufacturer	Akcakale 2 Sokak No: 82 Siteler Altindag, Ankara,Turkey.
Plant	Ankara
Line ID where the samples are made	-/-
Date of production	-/-
Product Name	ZEYSI
System description, file number	-/-
Exterior dimensions	500x350 mm
Total thickness	20 mm
Construction	4 / 12 / 4 mm
Spacer	SILANDE 12A Bendable Spacer. Manufacturer: ZHENGZHOU ZHONGYUAN SILANDE HIGH TECHNOLOGY CO.,LTD
Spacer material	Aluminium , bendable
Corner construction	Bent welded
Corner keys	-/-
Linear connector	SILANDE
Desiccant	Shandong Natergy Energy Technology Co., Ltd / Natergy 3A
Desiccant type	3 Å Zeolite
Standard Moisture adsorption capacity (T_C)	18 %
Desiccant amount	40 g/m
Outer sealant	SILANDE MF882 Silicone Sealant for Insulating Glass

Polymer type	Silicone, two part
Average sealant depth on spacer back (u)	5~7 mm
Average sealant width on glass surface (s)	-/-
Inner sealant:	SILANDE MF910G butyl sealant
Polymer type:	Polyisobutylene
Average sealant width (r):	3 mm
Mass of inner sealant per length and side (R)	2.5 g/m – single side
Coating	-/-
Edge deletion	-/-
Gas filling	-/-
Nominal gas concentration	-/-
Temperature during production	4 °C
Pressure during production	103.6 kPa
Altitude during production	978 m above sea level
Closing of gas filling holes	-/-
Special features	-/-

1.3 Sampling procedure

TÜV Rheinland B.V., acting as Notified Test Laboratory, has had no influence on the selection of the sample. All test specimen within the sample were test-worthy and were received on 29 May 2017.

1.4 Application

The request for testing was submitted by the assignor on 28 April 2017, order or reference number or name: -/-. Quotation number / assignment form number: 17.A056.

1.5 Method of testing

All applicable tests have been performed according to the European standard EN 1279-2 [1].

1.6 Put out to contract

No tests were performed at third parties.

1.7 Period of testing

The tests took place in the period week 23 till 35, 2017.

1.8 Privacy statement

Due to privacy reasons, the names of involved personnel that executed the tests, are not disclosed in the report. However, this information is available on internal work sheets, test forms etc. in the project file.

1.9 Remark concerning this ITT report

This report can be used to demonstrate that the sealant MF882 can pass when used in an insulating glass system when tested according to EN 1279-2 [1].

1.10 Notifications, accreditations, designations

TÜV Rheinland Nederland B.V. has been notified by the Dutch Ministry of Infrastructure and the Environment as Notified Laboratory (number 1750) and Notified (Factory Production Control) Certification Body (number 0336) for the European Construction Products Regulation 305/2011 (EU).

TÜV Rheinland Nederland B.V. has been accredited by the Dutch Accreditation Council (RvA) as ISO 17025 Test Laboratory (nr. L 484) and ISO 17065 Certification Body (nr. C078).

TÜV Rheinland Nederland B.V. has been designated as Technical Service (Laboratory) by the Approval Authorities for Germany (KBA – E1) and the Netherlands (RDW – E4) for automotive safety glass (ECE R43, 92/22/EC, 2009/144/EC).

TÜV Rheinland Nederland B.V. has been recognised by the German Institute for building technics (DIBt) under number NL005 as test, control and certification body.

Remark

The reported tests were performed under ISO 17025 accreditation.

2 Test results

2.1 Description of the test

The test specimens (insulating glass unit or IGU's) are conditioned for a minimum of two weeks at standard laboratory conditions. Five specimens are submitted to the specified climate test.

The climate test consists of two parts. The first part consists of 56 cycles of 12 hours from -18 °C to +53 °C with slopes of 14 °C/h where at -18 °C and at +53 °C the temperature is constant for 1 hour. This part is followed by a second part consisting of a period of 7 weeks at a constant temperature of 58 °C. For both parts a relative humidity of > 95 % is applied in case the temperature is above 0 °C.

After the climate test the specimens are stored at (23±2) °C and (50±5) % relative humidity for at least 1 week before measuring the moisture content (T_i). With the average initial moisture content (T_i) the standard moisture absorption capacity (T_c) the moisture penetration index is calculated for each IGU after the climate test.

2.2 Results and requirement

Prior to ageing, all 15 IGU's were visually inspected. No special deviations above variations due to the production process were found. After the visual inspection the test specimen were analysed on dew points. All IGU's showed dew points lower then -60°C. The test specimens were randomly numbered and the moisture contents (T_i & T_f) were determined with drying method. From these results the individual penetration indices I and I_{av} were calculated. According to the standard [1] the measurement uncertainty of I is maximal 0.1.

Evaluation of the moisture penetration index measured in accordance with EN1279-2:2002 [1]

Exterior dimensions:	500 x 350 mm
Total thickness before ageing	20.5 mm
Corner construction	Bent
Desiccant amount: only for desiccant in bulk	4 sides filled, approx. 53 gram
Average sealant depth on spacer back (u)	8.5-9.5 mm
Average sealant width on glass surface (s)	10-12 mm
Average inner sealant width (r):	4-5 mm
Edge deletion	N/A
Special features	No
Marking	No

Detailed test results

Initial values				
Unit no.	m_o [g]	m_i [g]	m_r [g]	T_i [%] $(m_i - m_r) / (m_r - m_o)$
7	34.5388	54.6390	54.4568	0.91
8	38.1678	58.2330	58.0476	0.93
9	34.7850	54.8026	54.6191	0.93
10	34.3035	54.3530	54.1726	0.91
Average				0.92

After climate exposure					
Unit no.	m_o [g]	m_f [g]	m_r [g]	T_f [%] $(m_f - m_r) / (m_r - m_o)$	I *)
4	37.5348	57.5646	57.3263	1.20	0.02
5	34.2718	54.2823	54.0771	1.04	0.01
6	34.3607	54.4207	54.2049	1.09	0.01
11	34.6852	54.7614	54.5338	1.15	0.01
12	34.3322	54.3495	54.1303	1.11	0.01
Average					0.01

*) I is calculated with a value of 18 % for T_c as mentioned by the manufacturer

Required	Value of the test	Pass / fail
EN 1279-2:2002 §4.1 Moisture penetration index		
Insulating glass units shall fulfil their functions during an economically reasonable working life. Therefore the following values are verified on test specimens submitted to the climate test described in this Part of the standard.		
The average moisture penetration index I_{av} over the five test specimen shall not exceed 0.20	I_{av} over the five test specimen = 0.01	pass
The unit with the highest moisture penetration index shall have an index value I not exceeding 0.25	Highest moisture penetration index $I = 0.02$	pass

3 Conclusion

The tested glass product, marked by the client or manufacturer as: ZEYSI, manufactured by: Zeysi cam ins. san.ve.tic.Ltd. sti, with inner sealant with trade mark/type: SILANDE MF910G and outer sealant with trade mark/type: SILANDE MF882 , meets the applicable requirements as stated in the European standard EN 1279-2 [1].

The test results exclusively relate to the tested objects.

Remark 1

Due to the fact that the purpose of this test report is not an initial type test for an IG manufacturer no system description can be mentioned to be used as reference. This report is thus also not allowed to be used in cascading and/or shared ITT procedures (if allowed or applicable). The identification of the actual IG manufacturer for this ITT report is not relevant and is called anonymous or published only if the IG manufacturer has given written agreement that his/her name is allowed to be mentioned. When this statement is not communicated on forehand to TÜV Rheinland, then anonymous will be used per default.




4 References

- 1 European standard EN 1279-2:2002 (E),
Glass in building – Insulating glass units – Part 2: Long term test method and requirements for
moisture penetration, European Committee for Standardization, November 2002.

5 Signatures

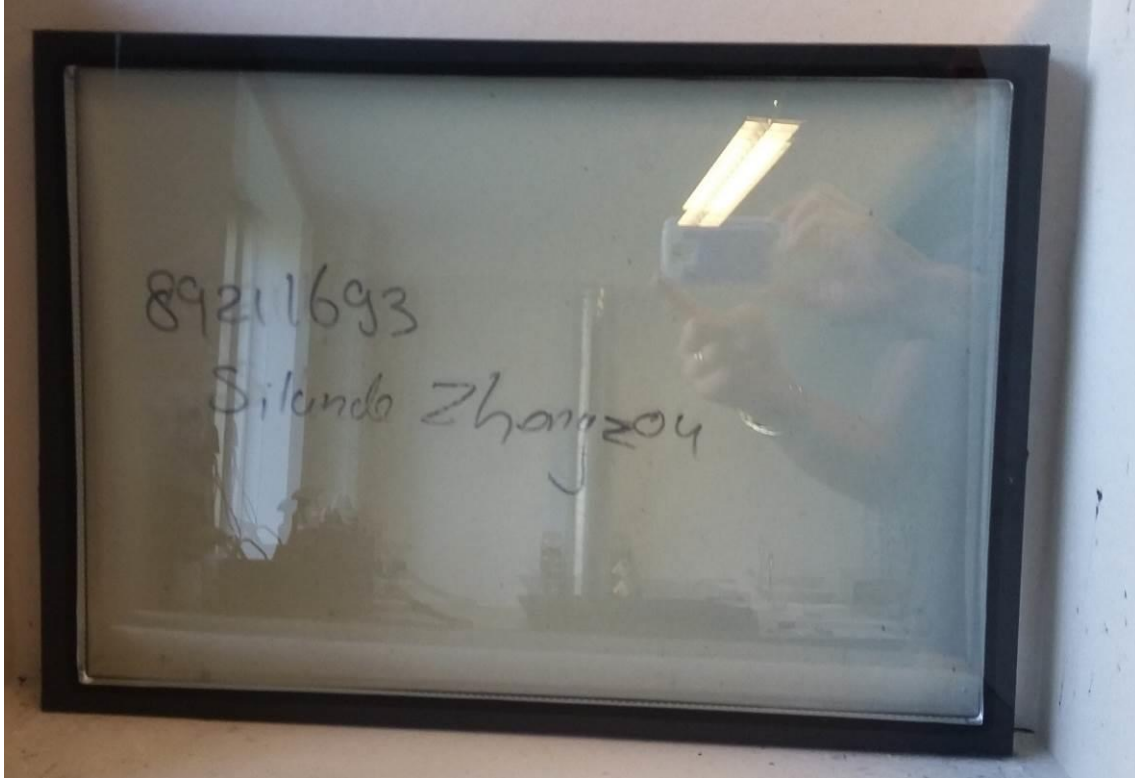
Author Mr. M.A.A.M. Schets, B.Sc.	Signature 
Specialist	
Peer review Mr. S. el Bardai	Signature 
Specialist	
Approved by Mrs. C.C.M. van Houten	Signature 
Manager operations	

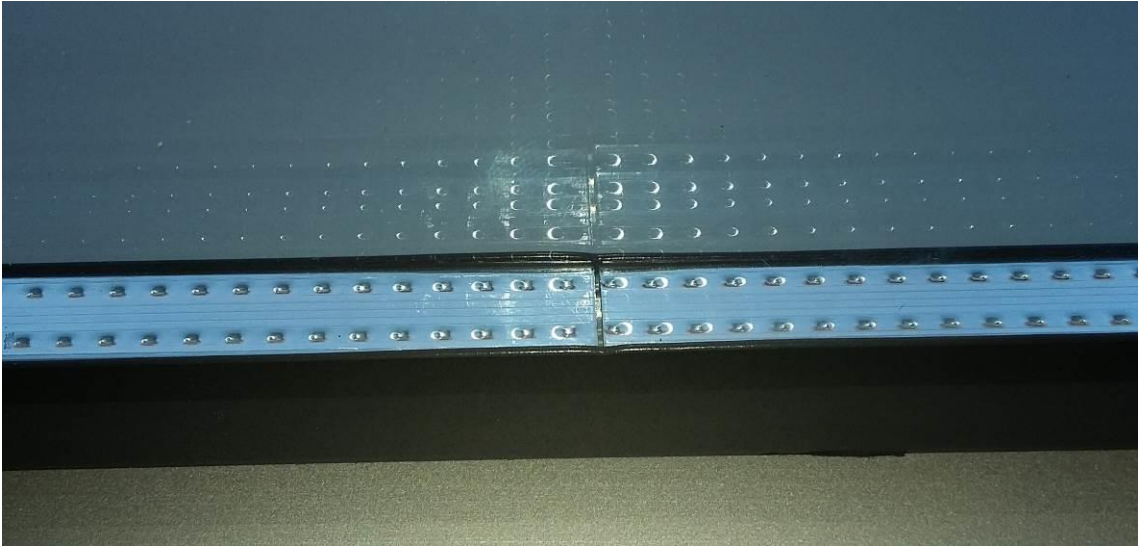
Appendix A, Summary of test results

 TÜVRheinland [®] Precisely Right. TÜV Rheinland Nederland B.V. P.O. Box 2220, 6802 CE Arnhem, The Netherlands Notified Laboratory no. 1750	
Summary of report no: 89211693-02 Date: 31 August 2017	
Insulating glass units - Moisture penetration results according to EN 1279-2 For details is referred to the complete test report.	
Company: (Demonstrator)	Name: Zhengzhou Zhongyuan Silande High Technology Co. Ltd Address: No.28 Dongqing West St., Zhengzhou Hi- Tech Development Zone 45001 Zhengzhou, Henan China
Plant:	Name: Zeysi cam ins. san.ve.tic.Ltd. sti Address: Ankara Turkey
System description, file number: -/-	
Product name: ZEYSI Edge seal composition: inner sealant: SILANDE MF910G outer sealant: SILANDE MF882 and aluminium spacer	
System conforms: YES	
NOTE: Comparisons of moisture penetration indices of different insulating glass unit system are meaningless.	
 Signature: M.A.A.M. Schets, B.Sc Specialist	 Signature: Mrs. C.C. M. van Houten Manager operations

NOTE: This Summary is not a certificate.

Appendix B, Pictures of the test specimen





- End of report -