

## Test report

**Test report relating to a glass product according to European standard EN 1279-2, concerning the product marked as: insulating glass, manufactured by: VASSILIKI GAVRILIDOU**

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Client	VASSILIKI GAVRILIDOU Mazaraki 1 Chrissoupoli Kavala Greece
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## 1 Introduction

### 1.1 Purpose

The tests have been performed in order to establish whether or not the product meets the requirements of the European standard EN 1279-2 [1].

This report is a re-issue of report TQS-RAP-07-2998/gge, November 2007, because of a name change/take-over of the manufacturer/company.

### 1.2 Description of the test specimen

<b>Insulating glass units – Declaration manufacturer</b>	
Manufacturer	VASSILIKI GAVRIILIDOU
Address of manufacturer	Mazaraki 1 , Chrissoupoli, Kavala, Greece
Plant	same as above
Line ID where the samples are made	-
Date of production	June 21, 2007
Product Name	insulating glass
System description, file number	Manios V. Maniou D. O.E., 166
Exterior dimensions	502 mm x 352 mm
Total thickness	20 mm
Construction	4 / 12 / 4 mm
Spacer	Profilglass S.p.A. H6.5 standard
Spacer material	metal
Corner construction	corner keys
Corner keys	Profilglass S.p.A. polypropylene-polyamide
Linear connector	-
Desiccant	Grace Phonosorb
Desiccant type	-
Standard Moisture adsorption capacity ( $T_c$ )	-
Desiccant amount	-
Outer sealant	Henkel Terostat-998 R
Polymer type	2C polysulfide
Average sealant depth on spacer back (u)	-
Average sealant width on glass surface (s)	-
Inner sealant:	Henkel Terostat-969
Polymer type:	Polyisobutylene
Average sealant width (r):	-
Mass of inner sealant per length and side (R)	-
Coating	NO
Edge deletion	N/A
Gas filling	-
Nominal gas concentration	-

Temperature during production	-
Pressure during production	-
Altitude during production	-
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.

### 1.4 Application

The request for re-issuing the report was submitted by the assignor on 23 December 2018, order or reference number or name: -/-. Quotation number / assignment form number: 89002194.

### 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 2007.

### 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

For any other manufacturer this initial type test (ITT) report is not automatically valid. The manufacturer for this ITT report is defined under 1.2.

### 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.

#### 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	58.9118	80.8602	80.3477	2.39
8	60.2895	80.7668	80.2548	2.56
9	61.7554	83.7100	83.1556	2.59
10	59.9848	82.0345	81.5308	2.34
Average				<b>2.47</b>

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	55.5098	76.5947	75.6656	4.61	0.12
5	59.2030	79.6602	79.0211	3.22	0.04
6	57.7784	80.9702	80.3061	2.95	0.03
11	63.0921	83.8786	83.3090	2.82	0.02
12	62.1876	86.8740	86.0763	3.34	0.05
Average					<b>0.05</b>

\*)  $I$  is calculated with a standard value of 20.0 % for  $T_c$  as mentioned in EN 1279-2 annex D

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 = 0.05	pass
The unit with the highest moisture penetration index shall have an index value $I$ not exceeding 0.25	Highest moisture penetration index $I = 0.12$	pass

### 3 Conclusion

The tested glass product, marked by the client or manufacturer as: insulating glass, manufactured by: VASSILIKI GAVRIILIDOU, with inner sealant with trade mark/type: Henkel Terostat-969 and outer sealant with trade mark/type: Henkel Terostat-998 R, 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

When and if changes are made in production method and/or equipment, assessment according to this standard shall be reconsidered and re-tests shall be performed when the changes can lead to different specifications of the glass. The decision and responsibility lies at the manufacturer.

#### Remark 2

If no reference of the product description was supplied by the manufacturer, than that document shall be added to this test report by the manufacturer. It was to the manufacturer's responsibility that the samples delivered for initial type test are representative to the production and deviations from perfection were included in the delivered test samples.

## 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

<b>Author</b> Mr. M.A.A.M. Schets, B.Sc.	Signature 
Specialist	
<b>Peer review</b> Mr. R. Brandhorst	Signature 
Specialist	
<b>Approved by</b> Mr. H. van Ginkel	Signature 
LSM	

## Appendix A, Summary of test results

 <b>TÜVRheinland</b> <sup>®</sup> Precisely Right. TÜV Rheinland Nederland B.V. P.O. Box 2220, 6802 CE Arnhem, The Netherlands Notified Laboratory no. 1750	
<b>Summary of report no: 89214611-01</b>	
<b>Date: 30 January 2019</b>	
<b>Insulating glass units - Moisture penetration results according to EN 1279-2</b> For details is referred to the complete test report.	
Company:	Name: VASSILIKI GAVRIILIDOU Address: Mazaraki 1 , Chrissoupoli Kavala Greece
Plant:	Name: VASSILIKI GAVRIILIDOU Address: Mazaraki 1 , Chrissoupoli Kavala Greece
System description, file number:	Manios V. Maniou D. O.E., 166
Product name:	insulating glass
Edge seal composition:	inner sealant: Henkel Terostat-969 outer sealant: Henkel Terostat-998 R spacer: metal
System conforms:	<b>YES</b>
NOTE: Comparisons of moisture penetration indices of different insulating glass unit systems are meaningless.	
	
Signature: M.A.A.M. Schets, B.Sc. Specialist	Signature: Mr. H. van Ginkel LSM

**NOTE: This Summary is not a certificate.**

- End of report -