

IASI Branch

INCERC Laboratory of Seismic and Climate Research and Testing - Iasi

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 degree laboratory license 3367/2018 issued by ISC

APPROVED BY

General manager of INCD "URBAN – INCERC"

Arch. PhD Associate Professor Vasile Meita

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**TEST REPORT no. 17- 5614 - 2/12.03.2019***Determine the thermal transfer factor by the hot box method*

1. **Client order/contract:** FN/ Contract 5641C/2019
2. **Test subject** Folding window, with PVC profile leaf SUNNY PLAST series 70 mm and thermal insulating glass (4mm float x 16mm x 4mm – 4 Seasons, with Argon).
3. **Client:** SUNNY PLAST SRL, Târgu Mureș, Str. Depozitelor no. 30, Tel: 0756100649, e-mail: [vanzare@sunnyplast.ro](mailto:vanzare@sunnyplast.ro)
4. **Sample manufacturer:** NDSPLAST SRL, Ploiești, Str. Neagoe Basarab no. 11
5. **Identification of used method (technical procedure)/Standard of the test:**
  - SR EN ISO 12567-1:2011/AC:2011. Thermal performance of windows and doors Determine the thermal transfer factor by the hot box method. Part 1: Complete doors and windows.
  - PTE IHS – F/06 – INCD URBAN INCERC – IAȘI
6. **Description and identification of the test subject:**

**Sample code:** IHS- 628 /E2 - 03.19 **Sizes:** 1480x1230mm,  
**Sample surface:** 1.8204 sqm, Glazing surface = 1.1887 sqm, Glas perimeter lg = 4.38 m, No. of samples - 1 pcs.

**Folding window, with PVC profile leaf SUNNY PLAST series 70 mm and thermal insulating glass (4mm float x 16mm x 4mm – 4 Seasons, with Argon).**

EPDM sealing,  
 Frame profile SUNNY PLAST series 70 mm - code SPQ-5-10252, gauge 70x64 mm.  
 Transom profile SUNNY PLAST series 70 mm - code SPQ-5-20252, gauge 70x56 mm. Rod  
 SUNNY PLAST series 70 mm - code SPQ-1-51252, gauge 20x16mm.  
 Galvanized steel reinforcement profile - gauge 2 mm, code SPQ-  
 2-84999 Glazing 4 float - 16 - 4 low-e (4 Season) 24 mm, Argon  
 Drainage holes – 4 – interior 2(5 x 25mm) exterior 2 ( 5 x25)mm.  
 Hardware GU –Winkhaus proPilot, hinges 2, Locking points – 3

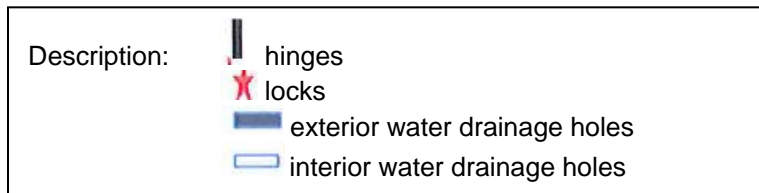
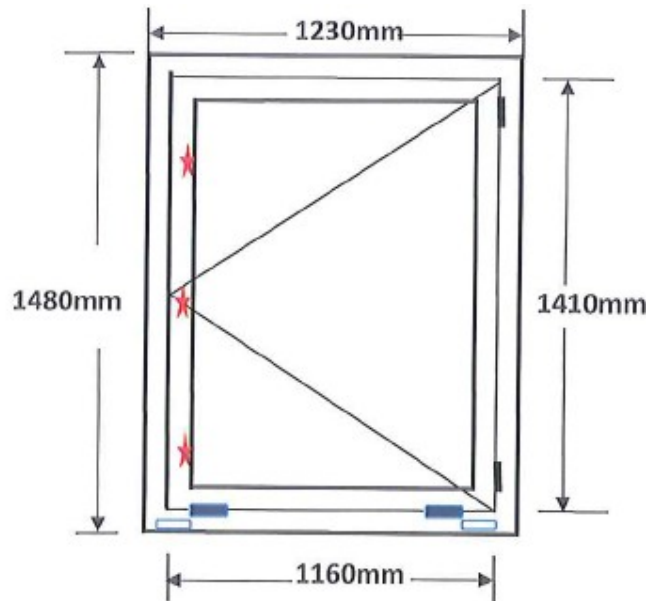


Fig. 1 - Folding window, with PVC profile leaf SUNNY PLAST series 70 mm and thermal insulating glass (4mm float x 16mm x 4mm – 4 Seasons, with Argon).



- PVC profile SUNNY PLAST series 70 mm, 5 chambers, constructive depth - 70 mm, standard reinforcement profile.
- Thermal insulating glass with structure 4mm float x 16mm x 4mm Low-e (4 Seasons), with Argon =  $U_g = 1.1 \text{ W/m}^2\text{K}$

7. Receipt date of the test subject: 7.03.2019

8. Test date: 11.03.2019

9. Data about sampling and conditioning: Sampling was made by client on their responsibility. Samples have been conditioned for 6h at (23+/-5) degrees C in the laboratory.

**10. Results:****10.1 Equipment and material used:**

- **Method and device for measuring thermal flow through closing items of buildings - OSIM patent no. 88022/1986**
- **Method and device for establishing the thermal regime required in event of using protected heated box - OSIM patent no. 88814/1985.**

Box sizes 2.0 x 1.5 x 0.6 m Position of  
the test sample - vertical Direction of  
thermal flow - horizontal

Test to determine thermal transmittance of the window is carried out according to the provisions of the standard SR EN ISO 12567-1:2011/AC:2011

**Measured values**

Measured parameter (measurement unit)	Measured value
$\theta_i$ – temperature of interior air in hot box (°C)	21.6
$\theta_{ne}$ – temperature of exterior air (°C)	1.7
$\theta_{ni}$ – temperature of interior air in the measuring room (°C)	22.2
$v_i$ – speed of interior air (m/s)	about 0.1
$v_e$ – speed of exterior air (m/s)	1.7
$\Phi_{in}$ – power injected in the hot box (W)	50.5
$q_{sp}$ - thermal flow specific to the sample (W/m <sup>2</sup> )	25.60
$R_{s,t}$ – total strength of the surface (m <sup>2</sup> K/W)	0.171
$U_m$ – measured thermal transmittance (W/m <sup>2</sup> K)	1.310
$\Delta m$ – measuring uncertainty (W/m <sup>2</sup> K)	± 0.08
<b><math>U_w</math> – thermal transmittance of the window (W/m<sup>2</sup>K)</b>	<b>1,325</b>

**11. Measuring uncertainty:****12. \*Opinions and interpretations: -**

Thermal transmittance determined according to SR EN ISO 12567-1:2011/AC:2011 of the Folding window with one leaf, PVC profile SUNNY PLAST series 70 mm and thermal insulating glass (4mm float x 16mm x 4mm – 4 Seasons, with Argon), provided that the tested composition is maintained and without adding other devices, obtained after rounding the measured value, is

**$U_w = 1.3 \text{ W/m}^2\text{K}$**

**NOTES:**

The test results only related to the test subject.

The test report may only be copied in full, unless written approval is obtained from the test laboratory.

Approved by,  
Branch manager - Iasi, Eng.  
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Branch Manager]

Checked by  
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Eng. Adrian Alexandru Ciobanu, PhD  
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Prepared by  
Test officer  
Eng. Constantin Miron, PhD  
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End of the test report



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<p style="text-align: center;">Windows, doors, curtain walls, EVIs, tempered glass, laminated glass, EITCS thermal insulation</p>

Report no.: **644**  
Client: **SUNNY PLAST**  
System: **SUNNY PLAST**

Dated: 27.02.2019





[seal AXACERT Romania]

**TEST REPORT**  
**Product: exterior doors and windows**  
**No. 644**

This report relates to the performances of windows and doors as described in the product standard **SR EN 14351-1:2006+A2:2016** – Windows and doors. Product standard, performance features. Part I. Exterior pedestrian windows and doors.

Client: SUNNY PLAST SRL, Targu Mures, Depozitelor 30, Tel: 0756100649, vanzare@sunnyplast.ro  
Sample manufacturer: NDSPLAST SRL, Ploiesti, Neagoie Basarab 11  
Sample/system description: PVC window, white, two equal leaves, folding on the left and swinging on the right, with edges, profile SUNNY PLAST, series 70 mm.  
Hardware: Winkhaus proPilot  
Sample code: 667-02-19  
Sample sizes: 1570 x 1375 mm  
Laboratory entry no. and date: 18.02.2019  
Validity as of release: 1 year

**CLASSIFICATION REPORT**

Wind load	Waterproofing	Air permeability	Safety devices
			
C3	7A	4	Threshold value
SR EN 12210	SR EN 12208	SR EN 12207	SR EN 14609

**Dated: 21.02.2019**

**Head of laboratory,**  
**Eng. Ion VASILE** [round seal AXACERT]  
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**Technical manager,**  
**Eduard MINCU**  
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**ANNEX 1**  
**DATA ON THE TESTED SAMPLE**

Component material	Type	Code	Gauge: mm	Number	
Frame	SUNNY PLAST series 70 MM	SPQ-5-10252	70 mm x 64 mm	1	
Sash	SUNNY PLAST series 70 MM	SPQ-5-20252	70 mm x 56 mm	2	
Edge	SUNNY PLAST series 70 MM	SPQ-1-44252	62 mm x 58 mm	1	
Rod	SUNNY PLAST series 70 MM	SPQ-1-51252	20 mm x 16 mm	8	
Seal	Coextruded	Stroke: 214990 Glazing: 315290	-	-	
Reinforcement	Galvanized steel	Sash, frame, edge: SPQ-2-84999	1.5 mm	-	
Glazing	4 mm x 16 x 4 mm	Float + low-e	24 mm	2	
Hardware	Winkhaus proPilot			Hinges	4
				Lock points	13

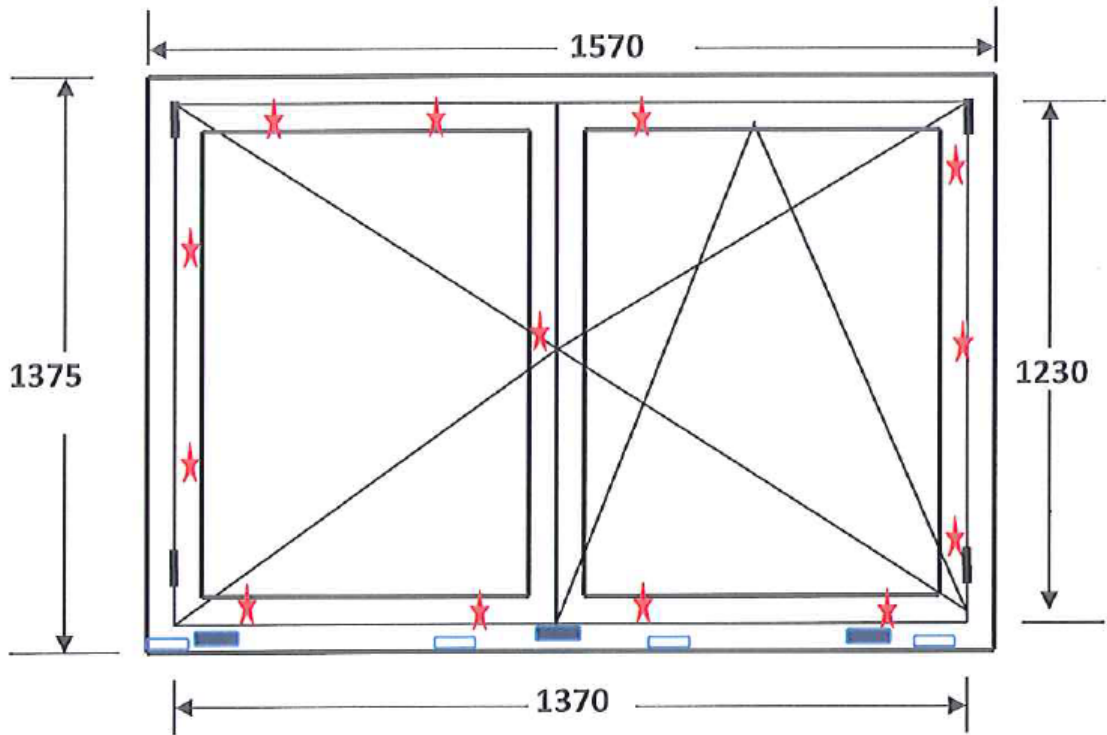
Drainage holes	Pcs: 7	Interior 5X25mm	Pcs: 4	Exterior 5X25 mm	Pcs: 3
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Sample size	Frame	Sash
Length L	1570 mm	2 x 695 mm
Height H	1375 mm	2 x 1230 mm
Length of the joints in installation	6,55 lm	-
Surface of the test room	2,16 sqm	-

The data have been processed in accordance with the sample file, attached to this test report. This Annex also includes the drawing with the description of the related profile and reinforcement system.

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- Description:
-  hinges
  -  locks
  -  exterior water drainage holes
  -  interior water drainage holes

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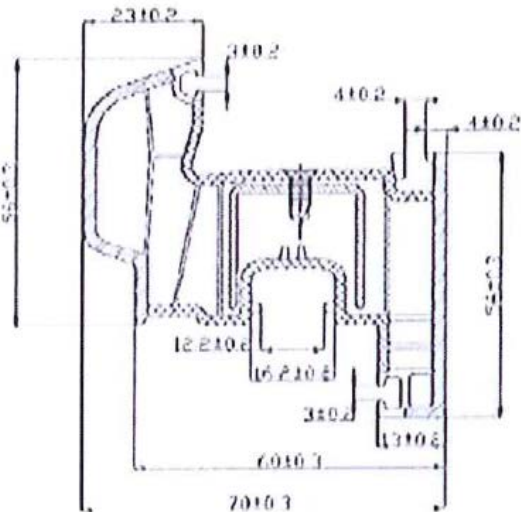
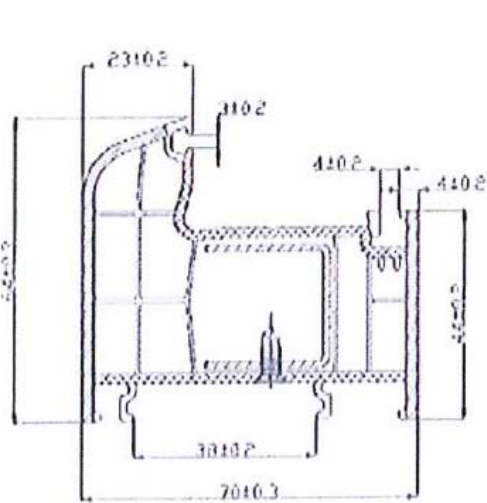
SUNNY PLAST series 70 mm:



FRAME PROFILE



WINDOW SASH PROFILE



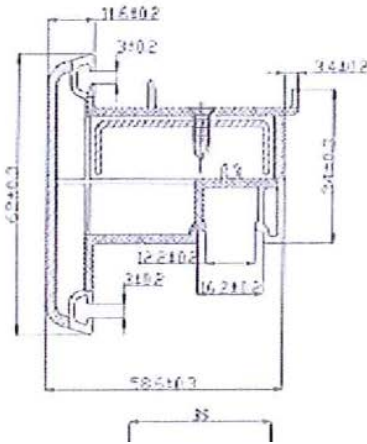


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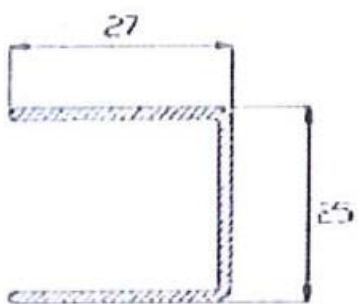
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**INVERTER**  
 2 channels for reinforcement



**ROD PROFILE**  
 5 mm/24 mm/32 mm





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**ANNEX 2 – REPORT DESCRIPTION**

**1. TECHNICAL REQUIREMENTS ESTABLISHED ACCORDING TO THE PRODUCT STANDARDS**

<i>Testing/classification method</i>	<i>Performance criteria/measurement units</i>	<i>Requirements/classes</i>
SR EN 1026:2016 SR EN 12207:2016	Air permeability (m <sup>3</sup> /hm <sup>2</sup> )	Npd/ Class 1-4
SR EN 1027:2016 EN 12208:2001	Waterproofing (Pa)	Npd/ Class (0- E xxx)
SR EN 12211:2016 SREN 12210:2016	Wind load strength (Pa)	Npd/ Class (A-B-C 1-5- Exxx)
SR EN 14609:20004 EN 13115:2001	Strength capacity of safety devices (N)	Npd/ Class (consistent/inconsistent))
SR EN 12046- 1:2004 SR EN 13115:2001	Operating forces (N)	Npd/ Class
SR EN 14608:2004 SR EN 13115:2001	Mechanical strength (N)	Npd/ Class
SR EN 10077- 1:2007 SR EN 10077- 2:2007	Thermal transmittance (W/m <sup>2</sup> K) determination	Npd/ Stated value
SR EN ISO 140- 3:1998 SR EN ISO 717- 1:2000	Sound performance (db) determination	Npd/ Stated value
Regulations	Emission of harmful substances	Npd/ According to the established norms

*Npd – May not be determined under SR EN 14351-1:2006+A2:2016*

*Note! Some of the performance features may have thresholds of the countries where the product is put on the market.*

*The tests were made according to the provisions of SR EN 14351-1:2006+A2:2016 based on the specific test standards of performance features noted in item 1.*

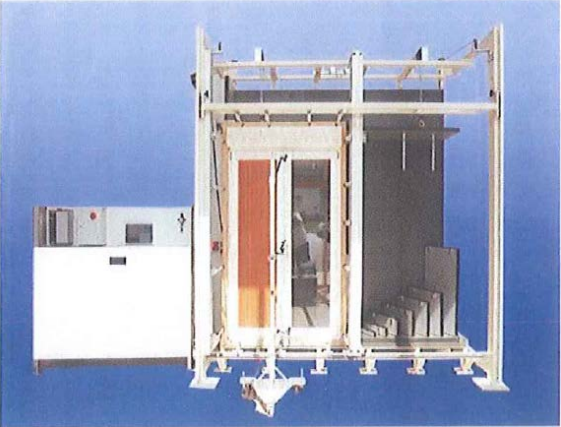
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**2. DATA ABOUT THE TEST INSTALLATION**

The installation was manufactured by the company HOLT Germany in 2012 and was commissioned in October 2012, being calibrated by METROMAT SRL on 16.09.2016 according to the calibration certificate no. 3694-09.16.

	<b>TECHNICAL DATA OF THE INSTALLATION</b> <ul style="list-style-type: none"> <li>a. TEST STAND type MB 06-2008           <ul style="list-style-type: none"> <li>- Maximum size of the test stand:</li> <li>- Length 1900 mm</li> <li>- Height 2000 mm</li> </ul> </li>   <li>b. CONTROL UNIT R 375-4000           <ul style="list-style-type: none"> <li>- Maximum pressure +/- 4000 Pa</li> <li>- Maximum air volume 375 m<sup>3</sup>/h</li> <li>- Growth ratio 0.5 – 1.0 m<sup>3</sup>/h</li> <li>- Maximum amount of water 50 l/min</li> </ul> </li> </ul>
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**3. TEST OVERVIEW – RESULTS**

**3.1. TEST SAMPLE PREPARATION**

The ambient temperature of the tests is over 16 up to 30 degrees C and humidity between 25 and 75%. The preparation of the sample for testing is made at the laboratory ambient temperature at least 24 hours before testing. Fixing of the sample in the test room is made so that it will not deform or twist and the movable parts will be functional.



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System: **SUNNY PLAST**

**3.2. AIR PERMEABILITY TEST**

**3.2.1. SAMPLE PREPARATION**

The air permeability test is made according to SR EN 1026:2016 "Windows and doors. Air permeability. Test method".

The test sample is cleaned and dried. Vents are shut. All the movable parts of the sample are closed and opened at least once for the test, before being locked in closed position.

**3.2.2. CONDUCTING THE TEST**

The test is made with the plant software by applying three pulses of the test pressure 500 Pa for 3s. After which, negative and positive pressures are applied in steps, with increments of 50 Pa, up to 300 Pa, followed by increments of 150 Pa up to the maximum pressure of 600 Pa.

This is how the flow Q is determined, expressed as (m<sup>3</sup>/h), which crosses the test sample depending on the pressure difference between the two faces.

By calculation, the measured air flow sizes are determined related to the perimeter of the joints (m<sup>3</sup>/hm), as well as the surface of the test sample (m<sup>3</sup>/hm<sup>2</sup>).

The plant software generates the characteristic curve of lost air flow related to the joint perimeter and the window surface, as well as the determined values of measured air flow on the applied pressures.



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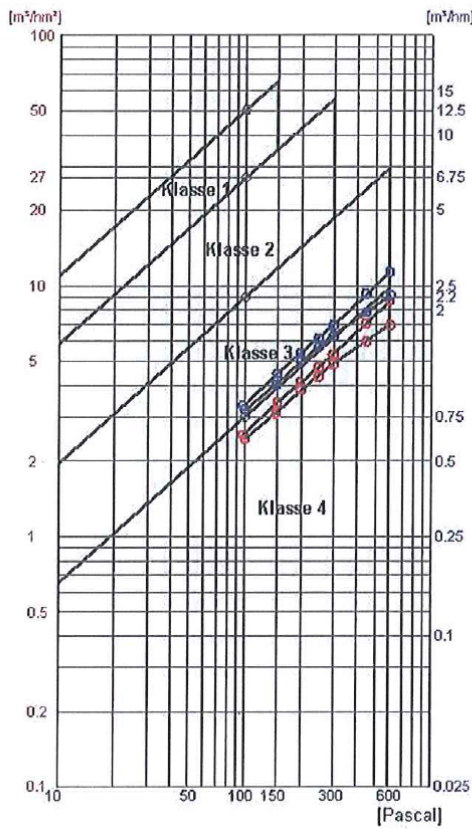
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Original air flow variation chart

Variations of air flow  
 Length of the joints in the installation: 6.55 lm  
 Surface of the test room: 2.16 sqm

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Prüffläche [m²]: 2.16  
 Fugenlänge[m]: 6.55

[Pascal]	[m³/h]	[m³/hm²]	[m³/hm]
98	5.5	2.55	0.84
149	7.4	3.43	1.13
198	8.9	4.12	1.36
248	10.2	4.72	1.56
297	11.5	5.32	1.76
445	15.3	7.08	2.34
594	18.8	8.7	2.87
-100	5.3	2.45	0.81
-147	6.7	3.1	1.02
-200	8.3	3.84	1.27
-248	9.4	4.35	1.44
-297	10.5	4.86	1.6
-448	13	6.02	1.98
-597	15.1	6.99	2.31



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**3.2.3. CLASSIFICATION**

Classification is made according to SR EN 12207:2016 considering the air flow lost at positive or negative pressure of 100 Pa related to surface and to the perimeter of the joints.

Technical class	Maximum test pressure Pa	Classification related to:	
		Surface M3/hm <sup>2</sup>	Joint perimeter M3/hm
1	150	<50	<12.50
2	300	<27	<6.75
3	600	<9	<2.75
4	600	<3	<0.75

According to art. 4.6 of SR EN 12207:2016: if a test item is classified based on total surface and length of joints between mobile parts, resulting:

- The same class. The tested item must be classified in one and the same class.
- Two close classes. The item should be classified in the most favourable class.
- A difference of two classes. The tested item should be classified in the average class.
- A difference of more than two classes. The tested item should not be classified.

CLASSIFICATION: Air permeability classification of the sample Class 4



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**3.3. WATERPROOFING TEST**

**3.3.1. SAMPLE PREPARATION**

The sample is checked for functionality of the movable parts and if the vents are shut.

**3.3.2. CONDUCTING THE TEST**

The test is carried out according to SR EN 1027:2016 and it originally consists in splashing the test sample, on the outer face, with a flow of 2 L/min/sqm for 15 minutes at a pressure of 0 Pa.

The test is made for type B protected windows, with a splash flow of 1 L/min/sqm, while for type A unprotected windows, with a splash flow of 2 L/min/sqm.

The next stage consists in maintaining the water splash and applying the positive test pressures for 5 min in increments of 50 Pa up to 300 Pa and 150 Pa, until water infiltrations occur through the test specimen. The classification in technical grades is made with one increment under that when the water infiltration occurs.

**3.3.3. CLASSIFICATION**

Classification is made according to SR EN 12208:2002 and consists in technical classification depending on the test pressure and water penetration through the sample.

Test pressure	Specifications	Test method A	Test method B	Classification	
				A	B
0	15 min	1 A	1 B		
50	Idem 1+5 min	2 A	2 B		
100	Idem 2 + 5 min	3A	3 B		
150	Idem 3 + 5 min	4 A	4B		
200	Idem 4 + 5 min	5 A	5 B		
250	Idem 5 + 5 min	6 A	6 B		
300	Idem 6 + 5 min	7 A	7 B	C	
450	Idem 7 + 5 min	8 A	-	X	
600	Idem 8 + 5 min	9A	-		
750	Idem 9 + 5 min	E750	-		
900	Idem 10 + 5 min	E900			

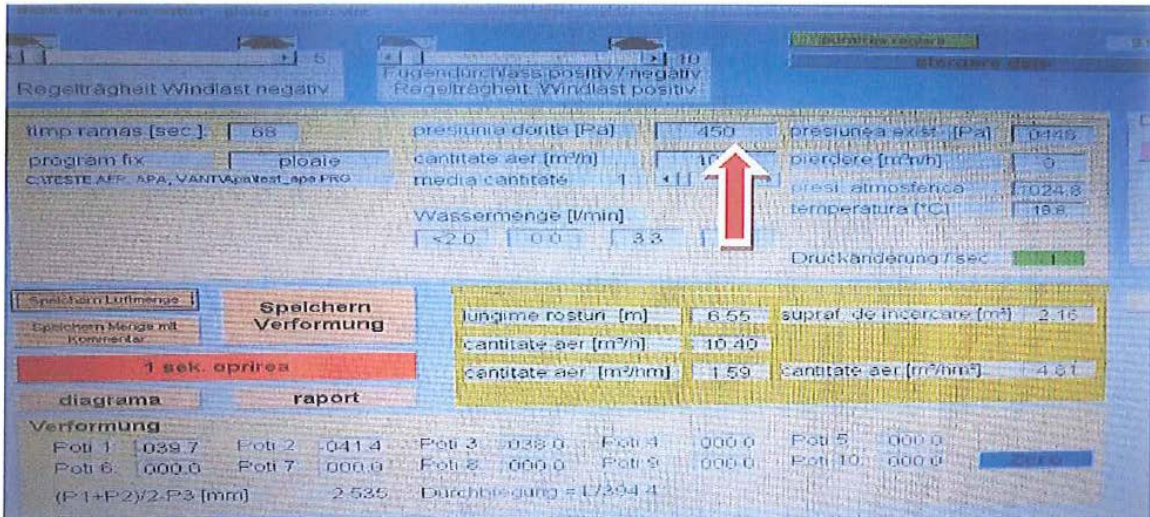
X – with water infiltration

C – classification



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**3.4. WIND LOAD STRENGTH**

**3.4.1. SAMPLE PREPARATION**

The test sample is checked for functionality of movable parts and if the vents are shut, if the micro-comparators are fixed in contact with the sample leaf and they are brought to zero.

**3.4.2. CONDUCTING THE TEST**

The classification is made under SR EN 12211:2016; the test sample is subject to three distinct pressures, as follows:

1. DETERMINE THE DEFORMATION OF THE LEAF under pressure P1;
2. DETERMINE PERFORMANCE REPEATABILITY of the sample after being subject to 50 cycles of positive and negative pressure  $P_2 = 0.5 P_1$ ;
3. DETERMINE THE STRENGTH (OPERATING SAFETY) of the sample after being subject to pulses of negative pressure, then positive, with the pressure  $P_3 = 1.5 P$

**DESCRIPTION OF THE STAGES**

**STAGE 1 – DETERMINE THE DEFORMATION OF THE LEAF**

The sample is subject to a sequence of three pulses 10% higher than P1, meaning 1320 Pa, and maintained for 3s, then the sashes are opened and closed 5 times to check their functionality.

Apply positive pressure  $P_1 = 1200$  Pa in upward increments of 100 Pa/s, maintaining for 30 s, record the deformation on the peak of pressure in points A, B, C and then residual deformation after 60s. the sample is checked in terms of functionality by successive opening and closing of movable items.

Apply pressure  $P_1 = -1200$  Pa, negative, in downward increments of 100 Pa/s, maintaining for 30s, record the deformation in points A, B, C and then residual deformation after 60s.



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Wind load strength test:



CLASSIFICATION: based on the recorded deformation figures, calculate the arrow (front deformation)

Positive/negative pressure pulse P1	Vertical support deformation in test points A, B, C (mm)								Arrow class		
	A upper		B middle		C lower		Front deformation				
	P+	P-	P+	P-	P+	P-	P+	P-	A <1/50	B <1/200	C <1/300
1200	3.5	-3.6	5.8	-6.1	3.5	-3.7	2.3	-2.4			X
0	Residual deformation after 60 s										
	0.0	-1.2	0.0	-1.5	0.0	-1.4	0.0	-0.2			

Mark the class with X!

L = maximum length between measuring points A-C is L=1230 mm.  
 Front maximum deformation of the support in overpressure is 2.3 mm and underpressure 2.4 mm.  
 Classification of typical relative arrow after maximum relative front deformation.

Maximum rate of deformation:

- At positive pressure:  $2.3/1230 = 0.0018 < 1/300 = 0.0033$
- At negative pressure:  $2.4/1230 = -0.0019 < 1/300 = 0.0033$



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**STAGE 2 – DETERMINE PERFORMANCE REPEATABILITY**

The sample is subject to 50 pressure cycles (negative, positive) P2 of 600 Pa, then the permeability to air is redetermined, the maximum accepted difference being 20%. If it passes, the operating safety is determined next.

**CLASSIFICATION**

After the test, the sample shows no dysfunctionalities of the capacity to handle movable items or fixed joints during five opening-closing cycles.

Concerning the test of air permeability, the sample maintained the same air permeability class.

**STAGE 3 – DETERMINE THE STRENGTH (OPERATING SAFETY)**

The sample is subject to a pulse of negative pressure P3 = -1800 Pa and then to a positive pressure pulse P3 = 1800 Pa, after which the functionality is checked by opening/closing the leaves. The pulses are applied in increments from 0 Pa to +/-1800 Pa, maintaining to +/- 1800 Pa for 10s, restore to 0 Pa in max. 10s. The tested sample shows no alteration of the handling capacity.

**CLASSIFICATION**

The sample falls in one of the following five classes, if it maintains its functionality after pressure:

- P3 = 600 Pa for class 1
- P3 = 1200 Pa for class 2
- P3 = 1800 Pa for class 3
- P3 = 2400 Pa for class 4
- P3 = 3000 Pa for class 5

Technical classification of operating safety      **CLASS 3**



**TEST LABORATORY FOR CONSTRUCTION PRODUCTS**

**1<sup>ST</sup> DEGREE**

**ISC-licensed under no. 3354/2018**

Windows, doors, curtain walls, EVIs, tempered glass, laminated glass, EITCS thermal insulation

Report no.: **644**

Dated: 27.02.2019

Client: **SUNNY PLAST**

System: **SUNNY PLAST**

### 3.5. STRENGTH OF SAFETY DEVICES

Safety devices are: dampers and stoppers, opening limiters (hardware for swinging model), fixing devices for cleaning.

- 3.5.1. The principle of the method consists in determine the required force to engage and disable the safety devices when initiating a force on the open leaf in the most unfavourable position/direction.
- 3.5.2. Preparing the sample. The sample is rigidly fixed on a frame with no vertical tension, at an opening angle of 90+50 degrees and the upper corner is fixed to 50 mm +/-5 mm against each side of the door/window leaf. All movable parts are opened and closed five times.
- 3.5.3. Conducting the determination – it is done according to SR EN 14609 by applying a force of 200 N on the area of the open leaf in the most unfavourable position/direction and maintaining the force for 60s. For samples with several leaves, the first test is made on the main leaf, for windows and door-windows with swinging leaves each function will be tested, the most frequently used taking priority.

Remove the load and measure the residual deformation with the micro-comparator with an accuracy of 0.1 mm.

Then, apply the loads of 350 N, 400 N, 600 N and 800 N, tracking the moment when the leaf exceeds the maximum accepted deformation.



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Windows, doors, curtain walls, EVIs, tempered glass, laminated glass, EITCS thermal insulation

Report no.: **644**  
 Client: **SUNNY PLAST**  
 System: **SUNNY PLAST**

Dated: 27.02.2019

	Leaf operation	Technical classification							
		Class 1 200N		Class 2		Class 3		Class 4	
		Threshold value 350 N		400 N		600 N		800 N	
		Consistent		Consistent		Consistent		Consistent	
		YES	NO	YES	NO	YES	NO	YES	NO
<b>Strength to vertical load</b>	folding	X		X		X		X	
	swinging	X		X		X		X	

Note: note by X the classification. Insert vp for threshold value.

3.5.4. Classification – the leaf should be able to maintain in position/direction for 60s under the applied force.

Threshold classification is made with a force of 350 N and it is noted by “reached threshold” or “not compliant with the threshold” in table 1. For more advanced values, table 2 applies.

Table 1

Classification	vp
Threshold	

Table 2

Technical classification	Folding position	CLASS 4
	Swinging position	CLASS 4

Report no.: **644**

Dated: 27.02.2019

Client: **SUNNY PLAST**

System: **SUNNY PLAST**

**OVERALL SAMPLE PICTURE**



**FINAL NOTE:**

The results of the assessments relate solely to the tested sample. The test procedures are established pursuant to the requirements of SR EN ISO/CEI 17025:2005. Final results are only valid with Annex 1 Sample file. This report remains valid as long as the regulations remain in force and the product does not undergo changes.

**Head of laboratory,**

**Eng. Ion VASILE**

[round seal AXACERT]

[unreadable signature]

**Technical manager,**

**Eduard MINCU**

[unreadable signature]





ANALYSES AND PRODUCT TEST LABORATORY FOR CONSTRUCTION  
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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 645  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

TEST REPORT  
Product: PVC, white color window, SUNNY PLAST  
profile series 70 mm  
Report no. 645

### 1. Introduction:

This report refers to the reaction to fire of the performance of windows and doors as described in the product standard SR EN 14351-1:2006+A2:2016 - Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

This report is issued in accordance with the procedures of SR EN ISO 11925-2 Reaction to fire tests -- Ignitability of products subjected to direct impingement of flame -- Part 2: Single-flame source test.

The method evaluates the ignitability by measuring the ascending propagation of a small flame on the vertical surface of a specimen after applying a small flame. This applies both on the surface and edge of a specimen, for 15 or 30 seconds. The determination of flaming droplets depends on the ignition or not of the filter paper placed under the specimen.

Deviations from test method is not the case

Client: SUNNY PLAST SRL, Mures County, Targu Mures, Str.  
Depozitelor, No. 30, Tel.: 0756100649,  
[vanzare@sunnyplast.ro](mailto:vanzare@sunnyplast.ro)

Sample manufacturer: NDSPLAST SRL, Ploiesti, Str. Neagoe Basarab, No. 11

Issued by: AXA CERT SRL, Tancabesti-Snagov-ILFOV  
Tel./Fax: 0746268015

Product designation: PVC, white color main profiles (casement, mullion, sash),  
SUNNY PLAST series 70 mm

Sampling procedure: The sampling was carried out by the body, being placed at  
the laboratory disposal by the manufacturer on the basis of  
slip submission samples

No./date of entrance in laboratory: 18.02.2019

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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 645  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

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## 2. Product details

### 2.1. General

The data were processed according to the sample sheet attached to this report. System description represents the reference document for this assessment. In accordance with the rules, the system components fall into the manufacturer's overall responsibility.

### 2.2. Product description

2.2.1. Designation: PVC, white color main profiles (casement, mullion, sash), SUNNY PLAST series 70 mm described below and in the test reports listed at 3.1.



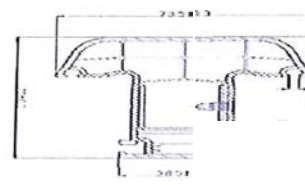
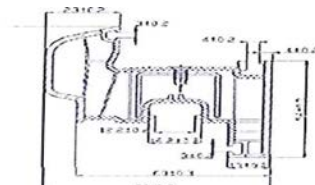
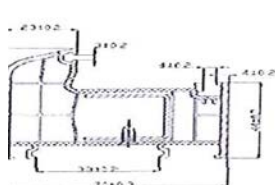
FRAME PROFILE



WINDOW CASEMENT PROFILE



MULLION PROFILE



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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 645

Date: 27.02.2019

Manufacturer: SUNNY PLAST SRL

System/product: SUNNY PLAST

ANNEX 1  
DATA ABOUT TESTED SAMPLE

Component material designation	Type	Code	Gauge dimensions: mm	Number
Frame	SUNNY PLAST series 70 mm	SPQ-5-10252	70 mm x 64 mm	1
Sash	SUNNY PLAST series 70 mm	SPQ-5-20252	70 mm x 56 mm	1
Fixed mullion	SUNNY PLAST series 70 mm	SPQ-5-30252	62 mm x 58 mm	1

### 2.3. Specimens' dimensions and number:

Six specimens with the dimensions: 250 mm +/- 2 mm x 90 mm +/- 2 mm x 8 mm.

### 2.4. Data on samples:

- Used support and fixing method: without support
- Joints: without joints
- Without pocket
- Density –
- Orientation: vertical, in front of an open space

**Conditioning:** The specimens were conditioned with 48 hours before testing, temperature (23 ± 2)°C and (50 ± 5) % relative air humidity, according to point 6 from SR EN ISO 11925-2.

Starting data: 20.02.2019

Completion data: 20.02.2019

### 2.5. Samples codification

Specimen no.	Sampe code
Specimen 1	667.1-1-02-2019
Specimen 2	667.1-2-02-2019
Specimen 3	667.1-3-02-2019
Specimen 4	667.1-4-02-2019
Specimen 5	667.1-5-02-2019
Specimen 6	667.1-6-02-2019

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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 645  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 3. Testing:

- 3.1. Testing date: 20.02.2019  
3.2. Laboratory conditions: Relative air humidity: 45%  
Ambient temperature: 19 °C  
3.3. Exposure: Surface exposure

### 3.3. Obtained results (flame duration: 30 seconds):

According to SR EN ISO 11925-2.

RESULTS	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5	Specimen 6	Parameters
Ignition production	NO	NO	NO	NO	NO	NO	NO
Time interval in which the flame peak reaches 150 mm	-	-	-	-	-	-	(-)
Flame propagation $F_s \leq 150$ mm	YES	YES	YES	YES	YES	YES	YES
Ignition of the filter paper due to flaming droplets	NO	NO	NO	NO	NO	NO	NO
Observations on the physical behavior of the specimen	-	-	-	-	-	-	-

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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 645  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

*Statement: Test results refer to the behavior of the product specimens under specific conditions of the test; they cannot be considered the only criterion for assessing the potential fire hazard of the product in service.*

The test report refers strictly to the specimen tested according to the description from point 2.2.

#### 4. Limitations:

This test document is not an agreement or a certification of the product.

Thus, the laboratory did not participate in the sampling of the product for testing, but maintained the appropriate references provided by the manufacturer for the traceability of the test specimens.

Final notice: Testing procedures are issued in accordance with SR EN ISO/CEI 17025:2005 requirements.

The final results are not valid without Annex 1 sample sheet.

The validity of this report is not temporal conditioned, provided that the product is not subject to change.

Head of Laboratory,  
Eng. Andi PREDA

Technical director,  
Eduard MINCU

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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

TEST REPORT  
*Product: PVC, white color window, SUNNY  
PLAST profile series 70 mm  
Report no. 646*

#### 1. Introduction:

This report refers to the reaction to fire of the performance of windows and doors as described in the product standard SR EN 14351-1:2006+A2:2016 - Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

This report is issued in accordance with the procedures of SR EN 13823-1+A1:2015 Reaction to fire tests for building product – Building products excluding floorings exposed to the thermal attack by a single burning item.

Deviations from test method is not the case

Client: SUNNY PLAST SRL, Mures County, Targu Mures, Str.  
Depozitelor, No. 30, Tel.: 0756100649,  
vanzare@sunnyplast.ro

Sample manufacturer: NDSPLAST SRL, Ploiesti, Str. Neagoe Basarab, No. 11

Issued by: AXA CERT SRL, Tancabesti-Snagov-ILFOV  
Tel./Fax: 0746268015

Product designation: PVC, white color window, two equal door wings, left tilting  
and fixed right, with mullion, SUNNY PLAST profile series 70  
mm, equipped with double insulating glass

Sampling procedure: The sampling was carried out by the body, being placed at  
the laboratory disposal by the manufacturer on the basis of  
slip submission samples

No./date of entrance in laboratory: 18.02.2019

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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

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## 2. Product details

### 2.1. General

The data were processed according to the sample sheet attached to this report. System description represents the reference document for this assessment. In accordance with the rules, the system components fall into the manufacturer's overall responsibility.

### 2.2. Product description

2.2.1. **Designation:** PVC, white color window, two equal door wings, left tilting and fixed right, with mullion, SUNNY PLAST profile series 70 mm, equipped with double insulating glass, described below and in test reports listed at 3.3.



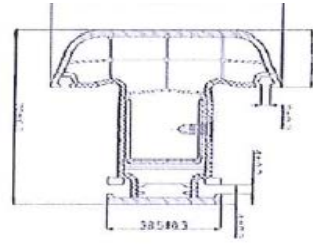
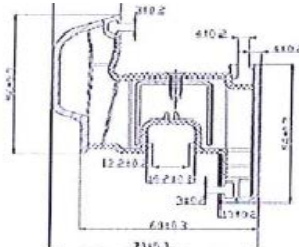
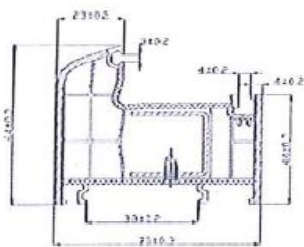
FRAME PROFILE



WINDOW CASEMENT PROFILE



MULLION PROFILE



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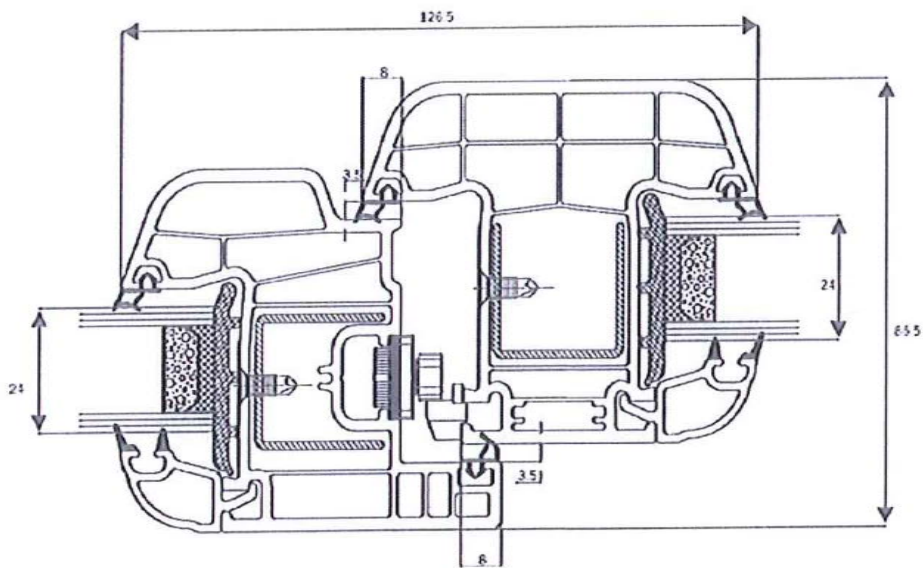


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Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019



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 thermal insulation, Reaction to fire

Report no.: 646

Date: 27.02.2019

Manufacturer: SUNNY PLAST SRL

System/product: SUNNY PLAST

ANNEX 1  
 DATA ABOUT TESTED SAMPLE

Component material designation	Type	Code	Gauge dimensions: mm	Number	
Frame	SUNNY PLAST series 70 mm	SPQ-5-10252	70 mm x 64 mm	1	
Sash	SUNNY PLAST series 70 mm	SPQ-5-20252	70 mm x 56 mm	1	
Fixed mullion	SUNNY PLAST series 70 mm	SPQ-5-30252	62 x 58 mm	1	
Ramrod	SUNNY PLAST series 70 mm	SPQ-1-51252	20 mm x 16 mm	4	
Fitting	Co-extruded	Stroke: 214990 Trimming: 315290	-	-	
Trimming	Galvanized steel	Casement, Sash, False mullions: SPQ-2-84999	1.5 mm	-	
Glazed	4 mm x 16 x 4 mm	Float + low-e	24 mm	2	
Metal fittings	Winkhaus proPilot	-	-	Hinges	2
				Locking points	5

Draining holes	Pc.: 4	Interior 5x25 mm	Pc.: 2	Exterior 5x25 mm	Pc.: 2
----------------	--------	---------------------	--------	---------------------	--------

Sample dimensions	Frame	Sash
Length/L	1000 mm	452.75 mm
Height/H	1200 mm	1128 mm

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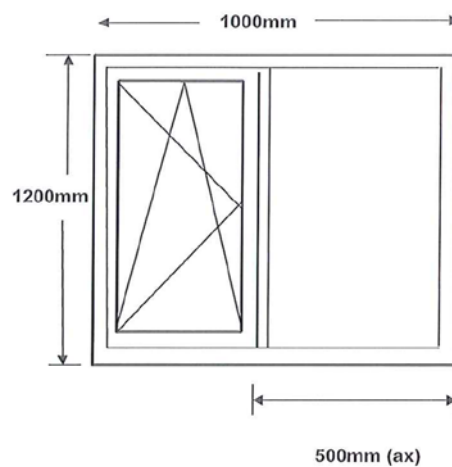
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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 2.2.2. Sample sketches:



### 2.3. Data on sample construction:

- Used support and fixing method: support from calcium silicate boards
- Fixing: mechanical with equipment grabbing
- Joints: is not the case
- Orientation: vertical, in front of an open space

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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

#### Dimensions and number of specimens:

- 1 pc. x (667.2-1-02-2019) specimen with the dimensions (1000 x 1200) mm
- 1 pc. x (667.2-2-02-2019) specimen with the dimensions (1000 x 1200) mm
- 1 pc. x (667.2-3-02-2019) specimen with the dimensions (1000 x 1200) mm

**Conditioning:** The specimens were conditioned with 48 hours before testing, temperature ( $23 \pm 2$ )°C and ( $50 \pm 5$ ) % relative air humidity.

Starting date: 21.02.2019

Completion date: 21.02.2019

#### 2.4. Samples codification

Sample number	Sample code	Conditioning interval/h
1	667.2-1-12-2019	48
2	667.2-2-12-2019	48
3	667.2-3-12-2019	48

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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 3. Testing:

3.1. Testing date: 21.02.2019

3.2. Laboratory conditions: Relative air humidity: 45%  
Ambient temperature: 19°C  
Ambient pressure: 103520 Pa

### 3.3. Obtained results:

Testing method	Parameters	Specimen 1	Specimen 2	Specimen 3	Results
					Average value of the continuous parameter
SR EN 13823+A1	FIGRA 0.2 MJ (W/s)	22.7	25.7	32.6	27.0
	FIGRA 0.4 MJ (W/s)	21.3	22.5	26.7	23.5
	LFS<specimen edge	NO	NO	NO	(-)
	THR <sub>600s</sub> (MJ)	2.0	2.2	1.5	1.9
	SMOGRA (m <sup>2</sup> /s <sup>2</sup> )	11.3	11.8	12.63	11.9
	TSP <sub>600s</sub> (m <sup>2</sup> )	198.7	185.3	190.2	191.4
	Droplets/flaming particles ≤ 10 s	NO	NO	NO	(-)
	Droplets/flaming particles > 10 s	NO	NO	NO	(-)

---

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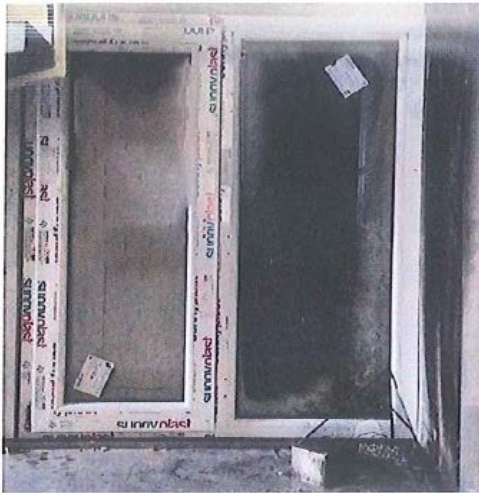
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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 3.4. Photos during the test:

Before fire exposure



During fire exposure



After fire exposure



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thermal insulation, Reaction to fire

Report no.: 646  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

*Statement: Test results refer to the behavior of the product specimens under specific conditions of the test; they cannot be considered the only criterion for assessing the potential fire hazard of the product in service.*

The test report refers strictly to the specimen tested according to the description from point 2.2.

#### 4. Limitations:

This test document is not an agreement or a certification of the product.

Thus, the laboratory did not participate in the sampling of the product for testing, but maintained the appropriate references provided by the manufacturer for the traceability of the tested specimens.

Final notice: Testing procedures are issued in accordance with SR EN ISO/CEI 17025:2005 requirements.

The final results are not valid without Annex 1 sample sheet.

The validity of this report is not temporal conditioned, provided that the product is not subject to change.

Head of Laboratory,

Eng. Andi PREDA

illegible signature

Technical director,

Eduard MINCU

illegible signature

---

**S.C. AXA CERT SRL**

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ANALYSES AND PRODUCT TEST LABORATORY FOR CONSTRUCTION  
SBI AXA CERT  
GRADE I  
*ISC authorized under no. 3430/2019*

Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

CLASSIFICATION REPORT  
*Product: PVC, white color window, SUNNY PLAST  
profile series 70 mm  
Report no. 647*

### 1. Introduction:

This report refers to the reaction to fire of the performance of windows and doors as described in the product standard SR EN 14351-1:2006+A2:2016 - Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets.

This report is issued in accordance with the procedures of SR EN 13501-1+A1:2010 Fire classification of construction products and building elements. Part 1: Classification using test data from reaction to fire tests.

Client: SUNNY PLAST SRL, Mures County, Targu Mures, Str.  
Depozitelor, No. 30, Tel.: 0756100649,  
[vanzare@sunnyplast.ro](mailto:vanzare@sunnyplast.ro)

Sample manufacturer: NDSPLAST SRL, Ploiesti, Str. Neagoe Basarab, No. 11

Issued by: AXA CERT SRL, Tancabesti-Snagov-ILFOV  
Tel./Fax: 0746268015

Product designation: PVC, white color window, two equal door wings, left tilting  
and fixed right, with mullion, SUNNY PLAST profile series 70  
mm, equipped with double insulating glass.

Sampling procedure: The sampling was carried out by the body, being placed at  
the laboratory disposal by the manufacturer on the basis of  
slip submission samples

No./date of entrance in laboratory: 18.02.2019

---

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Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

This classification report contains 9 pages and can be copied or reproduced only completely and with the consent of AXA CERT SRL

## 2. [Product details](#)

### 2.1. General

The data were processed according to the sample sheet attached to this report. System description represents the reference document for this assessment. In accordance with the rules, the system components fall into the manufacturer's overall responsibility.

### 2.2. Product description

2.2.1. **Designation:** PVC, white color window, two equal door wings, left tilting and fixed right, with mullion, SUNNY PLAST profile series 70 mm, equipped with double insulating glass, described below and in test reports listed at 3.3.



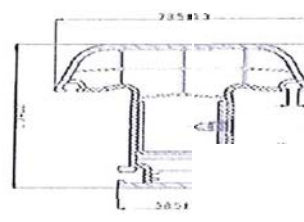
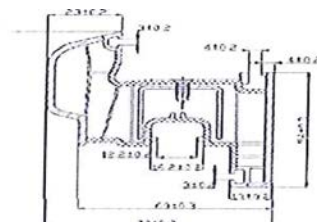
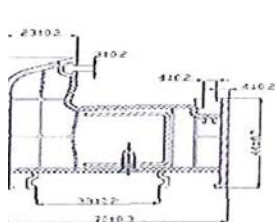
FRAME PROFILE



WINDOW CASEMENT PROFILE



MULLION PROFILE



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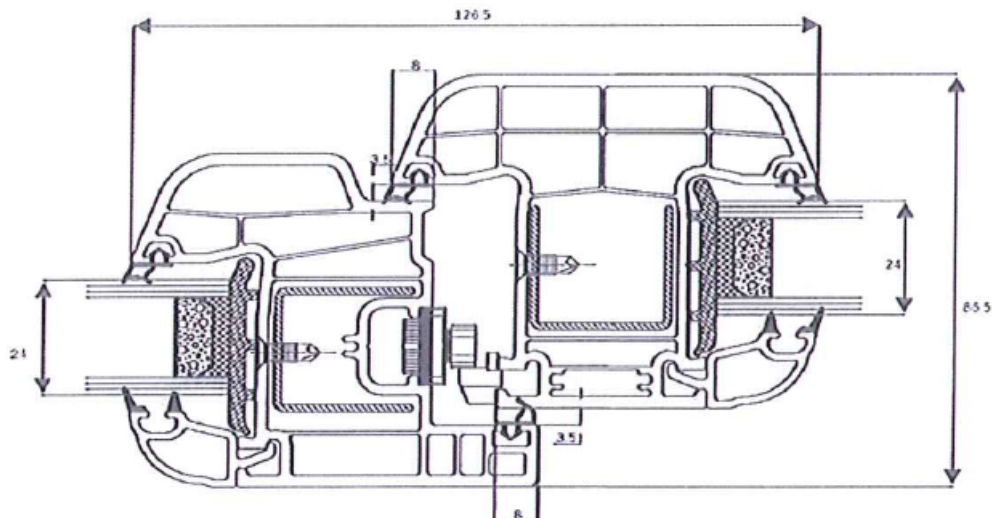
Windows, doors, curtain facades, EVIs, safety glass, laminated glass, ETICS  
thermal insulation, Reaction to fire

Report no.: 647

Date: 27.02.2019

Manufacturer: SUNNY PLAST SRL

System/product: SUNNY PLAST



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thermal insulation, Reaction to fire

Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

ANNEX 1  
DATA ABOUT TESTED SAMPLE

Component material designation	Type	Code	Gauge dimensions: mm	Number	
Frame	SUNNY PLAST series 70 mm	SPQ-5-10252	70 mm x 64 mm	1	
Sash	SUNNY PLAST series 70 mm	SPQ-5-20252	70 mm x 56 mm	1	
Fixed mullion	SUNNY PLAST series 70 mm	SPQ-5-30252	62 x 58 mm	1	
Ramrod	SUNNY PLAST series 70 mm	SPQ-1-51252	20 mm x 16 mm	4	
Fitting	Co-extruded	Stroke: 214990 Glazed: 315290	-	-	
Trimming	Galvanized steel		1.5 mm	-	
Glazed	4 mm x 16 x 4 mm	Float + low-e	24 mm	2	
Metal fittings	Winkhaus proPilot	-	-	Hinges	2
				Locking points	5

Draining holes	Pc.: 4	Interior 5x25 mm	Pc.: 2	Exterior 5x25 mm	Pc.: 2
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Specimen dimensions	Frame	Sash
Length/L	1000 mm	452.75 mm
Height/H	1200 mm	1128 mm

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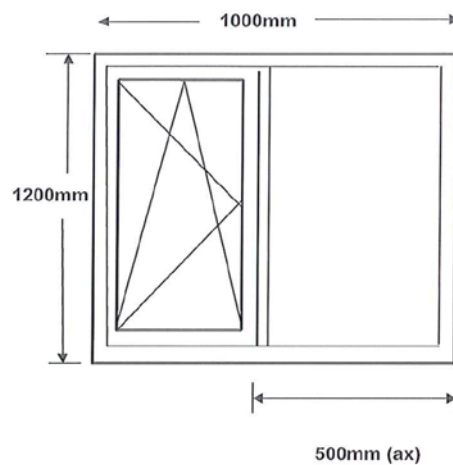
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thermal insulation, Reaction to fire

Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 2.2.2. Sample sketches:



### 2.3. Data on sample construction:

- Used support and fixing method: support from calcium silicate boards
- Fixing: mechanical with equipment grabbing
- Joints: is not the case
- Orientation: vertical, in front of an open space

---

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thermal insulation, Reaction to fire

Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

#### Dimensions and number of specimens:

- 1 pc. x (667.2-1-02-2019) sample with the dimensions (1000 x 1200) mm
- 1 pc. x (667.2-2-02-2019) sample with the dimensions (1000 x 1200) mm
- 1 pc. x (667.2-3-02-2019) sample with the dimensions (1000 x 1200) mm

**Conditioning:** The specimens were conditioned with 48 hours before testing, temperature  $(23 \pm 2)^{\circ}\text{C}$  and  $(50 \pm 5)$  %relative air humidity.

Starting date: 21.02.2019

Completion date: 21.02.2019

#### 2.4. Samples codification

Sample number	Sample code	Conditioning interval/h
1	667.2-1-12-2019	48
2	667.2-2-12-2019	48
3	667.2-3-12-2019	48

---

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Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

### 3. Reports and results based on which the classification is made:

#### 3.1. Test reports:

Laboratory name	Client	Report no.	Test method
AXA CERT SBI	SUNNY PLAST SRL	646	SR EN 13823+A1
AXA CERT	SUNNY PLAST SRL	645	SR EN ISO 11925-2:2010 (flame exposure for 30 s)

#### 3.2. Results

Test method	Parameters	Test number	Results	
			Average value of the continuous parameter	Parameters of conformity
SR EN ISO 11925-2:2010 (flame exposure for 30 s)	$F_s \leq 150$ mm	6	(-)	according
Droplets/flaming particles:	Ignition of filter paper		(-)	according
SR EN 13823+A1	FIGRA <sub>0,2 MJ</sub> (W/s)	3	27.0	according
	LFS < specimen edge		(-)	according
	THR <sub>600 s</sub> (MJ)		1.9	according
	SMOGRA (m <sup>2</sup> /s <sup>2</sup> )		11.9	according
	TSP <sub>600 s</sub> (m <sup>2</sup> )		191.4	according
	Droplets/flaming particles:		None	according
Note: (-) – not applicable				

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Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

#### 4. Classification and field of application

##### 4.1. Classification reference

This classification was carried out in accordance with SR EN 13501-1+A1:2010

##### 4.2. Classification:

"PVC, white color window, two equal door wings, left tilting and fixed right, with mullion, SUNNY PLAST profile series 70 mm" in report with fire reaction is classified:

B

Additional classification in relation to the emission of smoke:

S2

Additional classification in relation to the flaming droplets/flaming particles:

d0

The classification for reaction to fire of products for constructions, excluding flooring and thermal insulating products for linear pipes is:

Reaction to fire performance		Smoke emission			Flaming droplets	
B	-	s	2		d	0

Classification for fire reaction: B s2 d0

---

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Report no.: 647  
Manufacturer: SUNNY PLAST SRL  
System/product: SUNNY PLAST

Date: 27.02.2019

#### 4.3. Field of application:

The classification refers strictly to the test sample as described in point 2.2.

This classification may be applied as valid for PVC, white color window, two equal door wings, left tilting and fixed right, with mullion, SUNNY PLAST profile series 70 mm, equipped with double insulating glass.

This classification is valid for the following final applications for use:  
Windows and external pedestrian doorsets.

#### 5. Limitations:

This test document is not an agreement or a certification of the product.

Thus, the laboratory did not participate in the sampling of the product for testing, but maintained the appropriate references provided by the manufacturer for the traceability of the tested specimens.

Final notice: Testing procedures are issued in accordance with SR EN ISO/CEI 17025:2005 requirements.

The final results are not valid without Annex 1 sample sheet.

The validity of this report is not temporal conditioned, provided that the product is not subject to change.

Head of Laboratory,  
Eng. Andi PREDA

Technical director,  
Eduard MINCU

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