

No. Report: **3848**

Date: **08.08.2023**

Client: **EXTRUPLAST S.R.L.**

Product: **PVC window EXTRUPLAST series Arkitek 70**

**THERMAL TRANSMITTANCE DETERMINATION REPORT**  
**U<sub>w</sub>**

**Product: PVC window EXTRUPLAST series ARKITEK 70 equipped with  
thermal insulating glass**

**No. 3848**

This report refers to the performance of exterior windows and doors as described in the product standard  
**EN 14351-1:2006 + A2:2016 and EN 10077-1: 2017.**

**Client:** EXTRUPLAST S.R.L.

**Address:** Str. Petre Dulfu nr.124, Tohat, Ulmeni, Maramures,  
Romania

**Sample/system description:** PVC window, white color, two door leaves, with tilt and turn  
mullion, EXTRUPLAST profile Arkitek 70 series

**Insulating glazing element:** Double glazing 24 mm (4-16-4) components: PLANICLEAR 4  
mm - spacer AL 16 mm (Argon 90%) -PLANITHERM XN  
PLANICLEAR 4 mm

**Hardware:** ROTO

**Sample code:** AXA F046 23

**Sample sizes:** 1800 mm x 1480 mm

**No. /date of entering the laboratory:** 12.01.2023

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## 1 Introduction

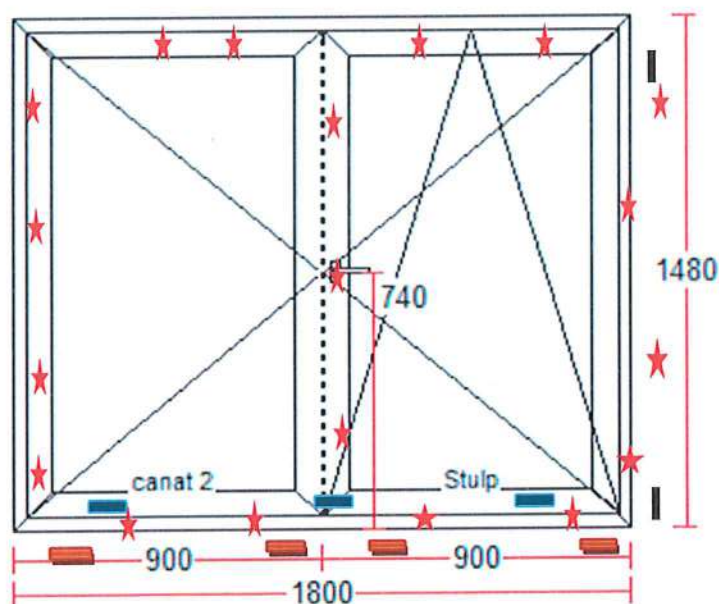
EXTRUPLAST S.R.L. has commissioned AXA CERT to determine the acoustic insulation of the windows/doors.

According to the rules, this decision and full responsibility belongs to the manufacturer. The description of the formula for determining the thermal transmittance coefficient of windows/doors ( $U_w$ ) is the reference document for this assessment.

For any other manufacturer, this test report is not valid.

The window/door executor for this determination report is defined as EXTRUPLAST S.R.L.

### Sample outline:



### Legend:

-  -hinge
-  -blockers
-  - external discharge holes
-  - internal water discharge holes

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## APPENDIX 1 DATA ABOUT THE TESTED SAMPLE

| Component material name | Type                             | Code                             | Dimensions: mm (intXdepthXexterior)                                                      | Number                 |           |
|-------------------------|----------------------------------|----------------------------------|------------------------------------------------------------------------------------------|------------------------|-----------|
| Frame                   | EXTRUPLAST Arkitek 70mm          | F10                              | 70x64                                                                                    | 1                      |           |
| Window frame            | EXTRUPLAST Arkitek 70mm          | F20                              | 70x78                                                                                    | 2                      |           |
| Mullion                 | EXTRUPLAST Arkitek 70mm          | F60                              | 70x68                                                                                    | 1                      |           |
| Ramrod                  | EXTRUPLAST Arkitek 70mm          | F41                              | 25x28.7                                                                                  | 8                      |           |
| Gasket                  | Co-extruded                      | -                                | -                                                                                        | -                      |           |
| Reinforcement           | 25x35x25x1.5<br>30x25x30x1.5     | A1051 – FRAME<br>A6051 – Mullion | -                                                                                        | -                      |           |
| Glazing                 | Double glazing<br>24 mm (4-16-4) | -                                | PLANICLEAR 4 mm -<br>spacer AL 16 mm (Argon<br>90%) -PLANITHERM<br>XN PLANICLEAR 4<br>mm | 2                      |           |
| Hardware                | ROTO                             | -                                | -                                                                                        | Hinge                  | 4         |
|                         |                                  |                                  |                                                                                          | Blocking points        | 16        |
| Drainage holes          | Pcs: 7                           | Interior<br>5x25mm               | Pcs: 4                                                                                   | Exterior<br>5x25<br>mm | Pcs:<br>3 |

| Sample sizes: | Frame   | Window frame  |
|---------------|---------|---------------|
| Length / L    | 1800 mm | 861 mm x 2pcs |
| Height / H    | 1480 mm | 1410 mm       |



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## 2. RESULTS

The thermal transmittance is calculated according to the standard **EN 10077-1:2017**. Thermal performance of windows, doors and shutters. Calculation of the heat transfer coefficient.

The formula is applied:

$$U_w = \frac{\sum A_f \times U_f + \sum A_g \times U_g + \sum l_g \times \Psi_g}{\sum A_f + \sum A_g}$$

Where:

$U_w$  = thermal transmittance coefficient of an exterior window/door

$A_T$  = The total area of the window

$A_f$  = ramie projection area (frame + sash)

$A_g$  = the projection area of the window

$U_g$  = the thermal transmittance coefficient of the glass

$U_f$  = thermal transmittance coefficient of the profile

$l_g$  = the perimeter of the window projection

$\Psi_g$  = the coefficient of thermal transmittance of the separator rod of the insulating glass

To the present thermal transmittance calculation report  $U_w$  is added the thermal transmittance report  $U_f$  of the profile and the Calumen thermal transmittance sheet  $U_g$  specific to the **EVI** package.

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Thus for: F (1800 mm x 1480 mm/ l x h)

$U_g = 1.1 \text{ W/m}^2\text{K}$ ,  $U_f = 1.30 \text{ W/m}^2\text{K}$ ,  $\Psi_g = 0.08$ ,  $A_T = 2.66 \text{ m}^2$ ,  $A_g = 1.95 \text{ m}^2$ ,  $A_f = 0.71 \text{ m}^2$ ,  $l_g = 5.60 \text{ m}$

$$U_w = \frac{\sum A_f \times U_f + \sum A_g \times U_g + \sum l_g \times \Psi_g}{\sum A_f + \sum A_g}$$

We apply the formula

I.e:

$\{(0.71 \times 1.30) + (1.95 \times 1.1) + (5.60 \times 0.08)\} : (0.71 + 1.95);$

$(0.92 + 2.14 + 0.44) : 2.66;$

$3.50 : 2.66 = 1.31$

According to EN 10077-1:2017, it is rounded to one decimal place

Results:  $U_w = 1,3 \text{ W/m}^2\text{K}$ ,

Date: 08.08.2023

Laboratory Head:  
Andi Preda