

# Test Report

9016461000-19/P

<b>Client</b>	POLITEC S.A. Via Lische, 5, Z.I.3 CH-6855 Stabio
<b>Test Item</b>	Determination of the heat transfer coefficient U of multiwall polycarbonate sheets by means of a two-dimensional simulation of the steady state heat transfer
<b>Date of Receipt (order)</b>	2008-09-22
<b>Product</b>	<b>BDL 25</b> <b>25 mm</b>
<b>Sheet Structure</b>	see table 1 on text page 2
<b>Date of Receipt (drawings)</b>	2008-10-02
<b>Test Method</b>	numeric simulation
<b>Computerized Calculation</b>	based on following standards EN 673 EN ISO 10077-2 EN ISO 6946
<b>Boundary Conditions</b>	see table 2 on text page 2
<b>Documentation of Results</b>	see table 3 on text page 2
<b>Order Number (MPA)</b>	9016461000
<b>Date of Report</b>	2008-10-20
<b>Number of Text Pages</b>	2
<b>Number of Enclosures</b>	0
<b>Total Number of Pages</b>	2
<b>Number of Copies</b>	1 original copy and 1 duplicate

The test results relate only to the items tested.

Publication of this report in full or partly is only allowed with written authorization by MPA University of Stuttgart.

**Table 1 Translation Unit of Multiwall Sheet Structure  
in mm**

1.1	overall sheet thickness	25
1.2	thickness of outside walls	0,45-0,65
2.1	distance of vertical ribs	12
2.2	thickness of vertical ribs	0,20-0,30
3.1	thickness of internal walls	0,10-0,20
3.2	thickness of diagonal walls	--

**Table 2 Boundary Conditions**

polycarbonate	thermal conductivity $\lambda$	W/m K	0,20
	emissivity	--	0,9
air in cavities, no convection	thermal conductivity $\lambda$	W/m K	0,025
temperature	mean temperature $T_m$	K	283
	difference $\Delta T$ between outer layers (15°C - 5°C)	K	10
ambient air, outside	heat transmission coefficient $h_e$	W/m <sup>2</sup> K	23
ambient air, inside	heat transmission coefficient $h_i$	W/m <sup>2</sup> K	8

**Table 3 Results of Calculation**

heat transfer coefficient U	W/m <sup>2</sup> K	<b>1,4</b>
thermal resistance R	m <sup>2</sup> K/W	<b>0,554</b>
thermal conductivity $\lambda$	W/m K	<b>0,045</b>

**51140 Thermal Insulation Products**

Engineer

*Mielich*  
(Dipl.-Ing. Mielich)



Head of Division

*Popp*  
(Dipl.-Min. Dr. Popp)