

## TECNAN

### Product: Heat barrier coating

TECNAN produces and commercializes new raw materials (high performance nanoparticles) for various industrial applications

TECNADIS HEATSHIELD is a nanotechnology-based heat barrier treatment for glass surfaces, which blocks infrared solar radiation (IR) by more than 40%.



Glazed façades

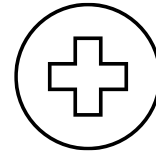
## Pilot Measurement & Verification Line 2

### Managed by: EURAC Research

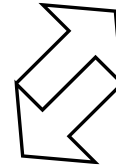


PM&VL2

The scope of the PM&VL2 is a complete characterization of all the envelope parts and their effects on internal occupants in real operating conditions. The G-Value Lab node offers a characterization of the solar factor in standard and tailor-made boundary conditions for a complete assessment of transparent and semi-transparent products.



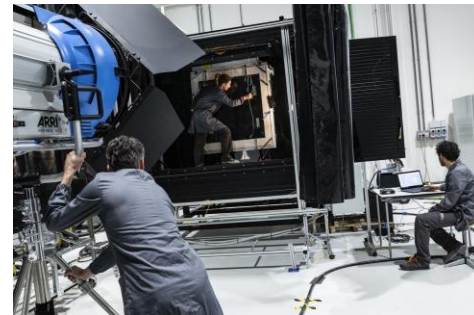
HEALTH



EFFICIENCY

### Which is the need covered by this service?

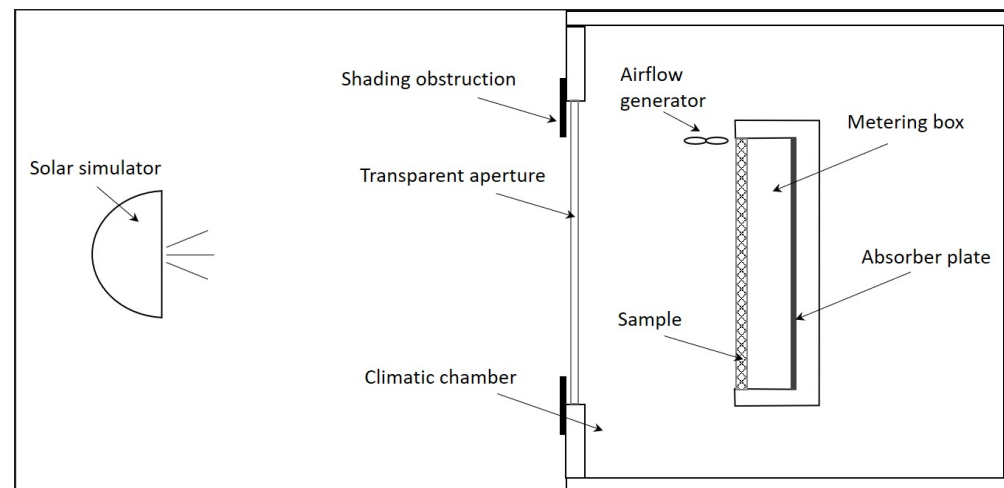
The analysis aimed at evaluating the g-value (i.e., Solar Heat Gain Coefficient), which is the indicator of the heat solar gains through the glazed envelope, of a double-glazing unit with and without heatshield coating under different environmental conditions (intensity and incidence angle of solar radiation and air temperature).



G-Value Lab, one of the nodes of PM&VL2

### Design of Experiments

Measurement of the g-Value under different conditions of a DGU before (nohs) and after (hs) the application of the heatshiled coating.



### Results

The heatshield coating applied on the glazing reduced the g-value of around the 30-37%. As also shown in the table below, the variability of the conditions (i.e. incident irradiance, operating temperature and angle of incidence) does not affect the coating functionality

Configuration	Solar irradiance	Air temperature	Tilt angle	g-value DGU	g-value DGU+coating
	$W/m^2$	$^{\circ}C$	$^{\circ}$		
1	600	20	0	$0.81 \pm 0.03$	$0.54 \pm 0.03$
2	600	20	30	$0.76 \pm 0.03$	$0.49 \pm 0.03$
3	600	20	45	$0.71 \pm 0.03$	$0.45 \pm 0.03$
4	400	20	0	$0.80 \pm 0.03$	$0.54 \pm 0.03$
5	600	30	0	$0.77 \pm 0.03$	$0.54 \pm 0.03$

### Conclusions

The heatshield coating applied on the glazing reduced the g-value of around the 30-37%. Additionally, the test showed that the variability of the conditions (i.e. incident irradiance, operating temperature and angle of incidence) does not affect the coating functionality; the trends are very similar between the DGU with and without the heatshiled coating.



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