SunSmart

Thermochromic Solar Control Coating

Brightlands
Materials Center
Powered by TNO & Brightlands Chemelot Campus

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SunSmart is BMCs thermochromic solar control coating for architectural glazing. It independently modulates a windows solar heat gain towards the buildings needs.

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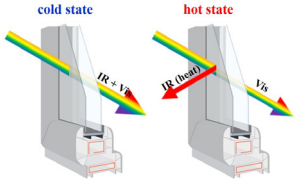
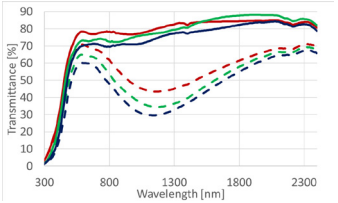
- BMCs SunSmart coating independently regulates the solar heat gain of architectural glazing systems. The coatings thermochromic material can switch between an infrared (IR) transparent and an IR blocking state at a specific glass temperature. This enables optimal usage of solar heat, simultaneously reducing cooling demand in summer and heating demand in winter, whilst increasing comfort.
- The SunSmart coating is available with a constant high visible transparency of 75% and haze levels ≤ 0.4%.
- The total solar transmission is modulated by up to 23%, realizing the transition between properties of low-e and solar control glass.
- Color coordinates comparable to commercial solar control glass are reached and can be adapted to end user requirements.
- The switching temperature of SunSmart has been optimized for highest energy efficiency in all seasons using real life measurements.
- The SunSmart coating is a single layer system prepared by wet-chemical deposition. Coating application has been optimized on 1 m^2 scale with successful trials on 2250x3210 mm DLF glass.
- The coating is robust and durable with a pencil hardness of >4H and a shelf life of >4 months. It withstands exposure to solar radiation according to EN 1096-3 and shows no switching fatigue after more than 4000 cycles (>10 years lifetime).
- Optimal compatibility with commercial low-e coatings has been investigated, realizing windows with G value changes up to 13% at U values of 1.1 W/m^2K.
- The SunSmart window is perfectly optimized for continental and oceanic climates. Energy cost savings of 500 € per year are reached, enabling an attractive return on invest within 7 years.
- Heat stress is reduced by up to 50%, increasing comfort and reducing the need for air conditioning.





		red	green	blue
T_{vis} [%]		69	64	61
G	cold	0.59	0.56	0.54
	hot	0.49	0.45	0.41
ΔG [%]		10	11	13
U [W/m^2K]		1.1	1.1	1.1

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