

SolarSmart™ Technology



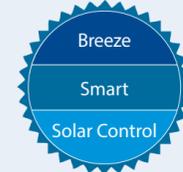
SolarSmart technology defies standard transmission of solar energy in transparent sheets and allows more versatile color and solar transmission specification per project. Unlike regular tints, SolarSmart sheets and panels admit more natural daylight while reflecting outwards Infrared radiation that creates heat. This characteristic breaks the traditional link between shading coefficient and light transmission, allowing a different perspective on the specification of natural light in architectural design.

Promoting Energetic Efficiency and Well Being



SolarSmart tints allow better use of natural lighting without sacrificing the interiors. More natural light results in a healthier and more productive ambience. Energy saving is also promoted through reduction of both illumination and air conditioning requirements.

Technology Groups



The SolarSmart product range includes 3 technology groups, which have different characteristics and appearance, as described in each group page on the right.

Color Specification



SolarSmart™ tints can be applied to any Palram transparent polycarbonate sheet or panel system: SUNPAL, SUNGLAZE, SUNTUF, PALSUN, SUNLITE and PALGARD. The tints can be blended with any color to tailor the desired appearance and solar properties.

SOLAR CONTROL

Standard Colors	Solar Control, Solar Olympic
Appearance	Hazy metallic
Near-Infrared Selectivity*	1.03
Application	Solar Control sheets block heat better than white opal and clear sheets, which tend to develop high heat buildup. These products will not have high clarity, but will be very effective when applied with low light transmission in large skylights.

*Data for PALSUN® 3mm Solar Control 35%LT
Near-Infrared Selectivity = The ratio of transmitted natural daylight and Infrared energy, which represents the efficiency of SolarSmart™ in transmitting "cool light".



Athens Olympic Stadium, Greece

Architect: antiago Calatrava | Roofing: PALSUN® - Solar Olympic 12mm
Application: Skylight/Roof - 24,000sqm

Palram tailored a brand new tint for the PALSUN Solid Polycarbonate Panel, Solar Olympic, which consisted on Solar Control technology and "glass-like" colors. The result was moderate heat transmission with diffused daylighting, creating a pleasant ambience for the crowd.

SMART

Standard Colors	Smart Green, Smart Blue
Appearance	Clarity and low haze
Near-Infrared Selectivity*	3.34
Application	Smart products offer high light transmissions yet a moderate shading coefficient. Their improved transparency and Near-Infrared selectivity allow a relatively clear view to the outdoors while significantly reducing interior heat buildup.

*Data for PALSUN® 2mm Smart Green 60%LT



Universiade Main Stadium, China

Architect: GMP | Roofing: PALSUN® - Smart Green 8,10,12mm | Application: Skylight/Roof - 45,000sqm

The Smart Green tint that was tailored for the stadium was required to meet the architect's solar properties specifications. Using tints from the "Smart" family allowed high clarity and light transmission values yet low Infrared admittance.

BREEZE

Standard Colors	Bluish Breeze
Appearance	Light Bluish with ultra-high clarity
Near-Infrared Selectivity*	5.51
Application	Breeze products offer unsurpassed energetic efficiency and transparency. Their glass-like clarity can be used to provide high lighting with the clearest view.

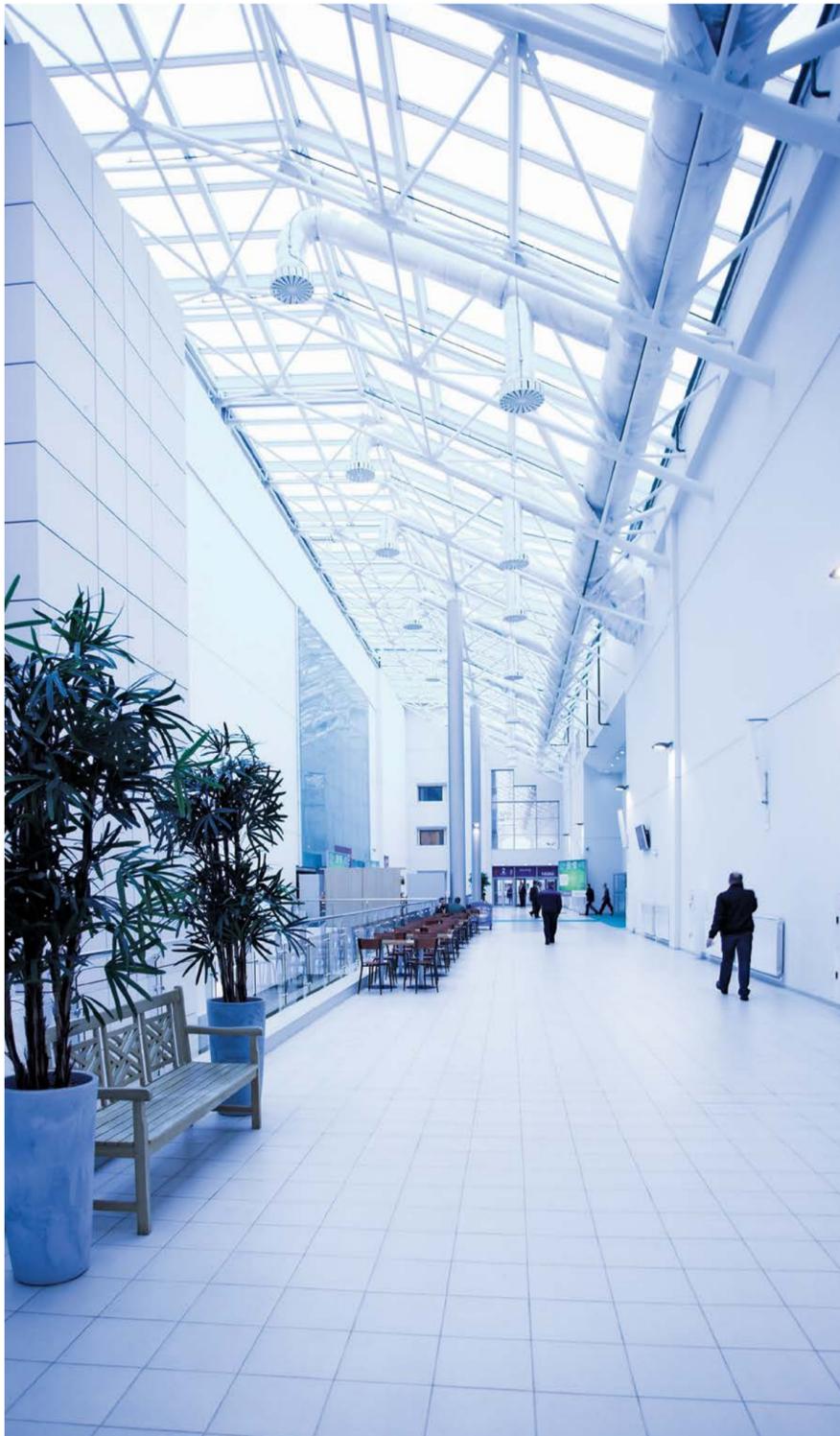
*for PALSUN® 3mm Breeze (Colorless) 70%LT



Grupo Recordare Office Building, Colombia

Roofing: PALSUN® Breeze 6mm | Curtain-Wall / Skylight

Palram supplied PALSUN flat solid polycarbonate sheets with "natural-bluish" Breeze tint. The high Near-Infrared selectivity of the Breeze sheets significantly reduces heat buildup within the structure and allowed the implementation of a large window area.



The Solar Spectrum



250nm - 400nm

Ultra-Violet

Harmful to living tissue and may cause skin cancer. All Palram polycarbonate products block 99.9% of UV radiation.



400nm - 750nm

Visible Light

Visible light enables eyesight, whereas natural daylight also promotes well being. Palram offers tailoring of specific light transmission and diffusion for any given project.



750nm - 1,450nm

Near-Infrared

Converts to heat when absorbed by objects, resulting in heat buildup. SolarSmart™ products block a portion of the Infrared radiation and transmit "cool light", thus improving well being while reducing AC costs.

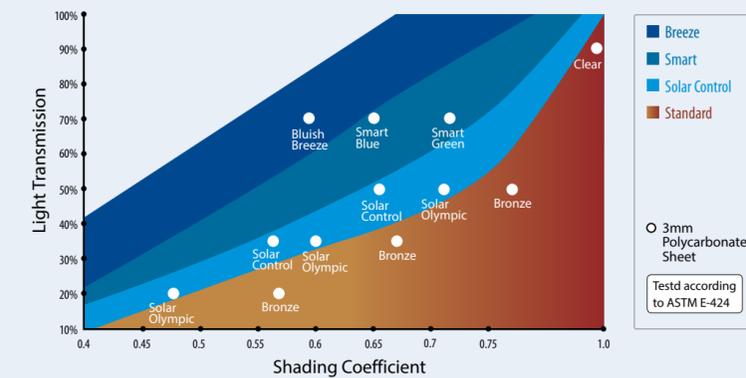


Near-Infrared Selectivity

The efficiency of SolarSmart™ products is measured by their ability to better differentiate between visible light and Near-Infrared energy transmission. Near-Infrared Selectivity values are calculated by dividing the levels of visible light (400 to 750nm) and Near-Infrared radiation (750 to 1400 nm). Example values of Near-Infrared selectivity appear in each SolarSmart™ group page.

Efficiency Comparison

The attached graph demonstrates the efficiency of SolarSmart products in comparison with clear and standard colored sheets. The graph shows how SolarSmart™ tints enable higher light transmission specification while maintaining or decreasing shading coefficient values.



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SolarSmart™ Technology
Efficient Daylighting

