POLYCAST®

PRODUCT BULLETIN

SPARTECH®

Polycast® SolarControl™

Cell Cast Acrylic Sheet

Performance Characteristics & Comparisons

Polycast® SolarControl™ is a custom cell cast acrylic sheet solution that blocks out significant amounts of near-infrared (NIR) radiation while maintaining high visible light transmission. It is available in a wide range of colors and light transmissions, including Night Vision Compatibility (NVG). This aircraft-quality monolithic glazing material can be manufactured to MIL-PRF 5425, 8184 and 25690; DTD-5592; L-P-391; ASTM D-4802 and other specifications.

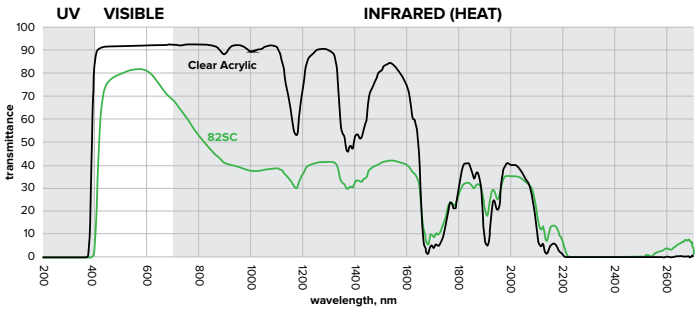
BENEFITS

- Reduces cabin temperatures by as much as 20°F
- Lowering cabin temperatures can impact operating costs while increasing pilot and passenger comfort
- SolarControl™ colors provide full UV protection and resistance
- SolarControl™ colors lessens UV exposure to pilots while minimizing visual impacts on cockpit and cabin materials
- Meets light transmission requirements for windscreens and windows
- Can be produced to meet standard aerospace specifications, including MIL P 25690 for stretched acrylic.
- Replicates many “standard colors” used in aircraft, with the ability to develop new colors
- Thermoforms same as colorless cast acrylic sheet.

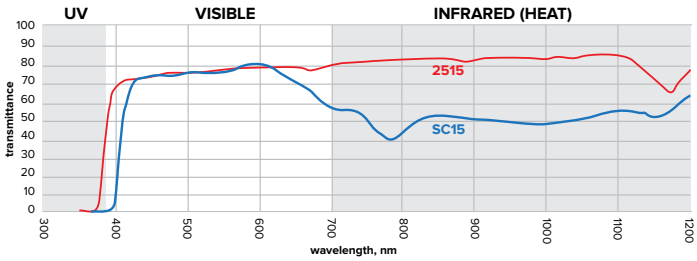
SPECTRAL TRANSMISSION COMPARISONS OF GLAZING MATERIALS

These two graphs illustrate the type of radiation allowed to pass through two different glazing materials. Graph A compares standard clear acrylic with Polycast® 82SC while Graph B shows differences between traditional 2515 and SC15 Gray.

82SC vs. Clear Acrylic



SC15 vs. 2515



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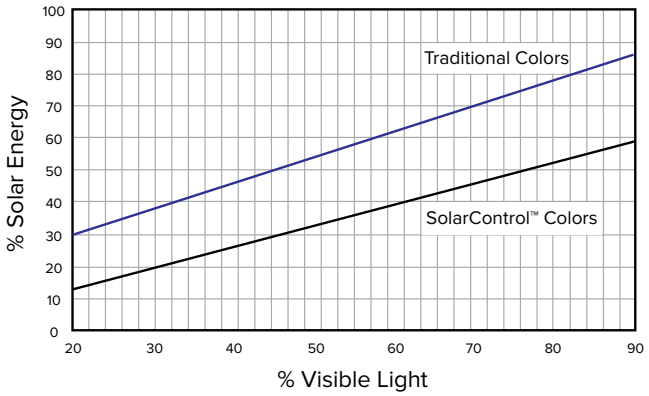
SOLAR ENERGY VS. VISIBLE LIGHT TRANSMISSION

The graph (right) depicts the typical relationship between solar energy transmission and visible light transmission when using traditional colors versus Polycast SolarControl™ colors.



HEAT REDUCTION COMPARISONS BY COLOR

The tables below show examples of the heat reduction advantages of Polycast SolarControl™ colors compared with traditional materials. All SolarControl™ colors reduce UV damage by at least 98%. This typical data is not intended to be used for specification purposes.

Note: Both Polycast SolarControl™ materials transmit high amounts of visible light (400 to 700 mm) and transmit much less radiation in the near-infrared (NIR) and in the UV. The NIR and UV regions contain significant amounts of solar energy, but do not contribute to visibility.

UV-SC COLOR EXAMPLES

COLOR	% VISIBLE LIGHT	% SOLAR ENERGY**	% ENERGY REDUCTION
Clear Acrylic	92	85	15
82SC*	82	53	47
2111 Green	77	75	25
SC11 Green*	72	45	55
2515 Gray	76	74	26
SC15 Gray*	72	51	49
2540 Bronze	75	72	28
SC40 Bronze*	71	47	53
2256 Gray	65	66	34
SC56 Gray*	65	47	53
2094 Gray	45	49	51
SC94 Gray*	45	38	62
2537 Gray	32	41	59
SC37 Gray*	32	27	73

COLOR	% VISIBLE LIGHT	% SOLAR ENERGY**	% ENERGY REDUCTION
2412 Bronze	27	35	65
SC12 Bronze*	27	26	74
2064 Gray	26	34	66
SC64 Gray*	26	24	76
2130 Green	23	40	60
SC30 Green*	24	21	79
2538 Gray	16	26	74
SC38 Gray*	15	15	85
2074 Gray	13	32	68
SC74 Gray*	13	13	87
2370 Bronze	10	16	84
SC70 Bronze*	10	13	87

* Indicates special solar control properties. Colors not listed are available upon request. SolarControl™ colors are available in a wide range of light transmissions.

** Solar Energy calculated using Lawrence Berkeley National Laboratory Optics v.5 software. The actual temperature in service will be dependent on the combination of many factors, such as weather conditions (including wind velocity) and type of application.

NVG COMPATIBLE COLORS

COLOR	DESCRIPTION	RELATIVE HEAT GAIN (BTU/HR X FT²)	% T SOLAR	% VLT	$\%T_{NVG}$	R (VLT/T SOLAR)
Gold Coat	Gold Coating Standard	—	—	—	72	—
NV73	Copper	173	57	73	75	1.3
NV83	Near Clear	174	60	83	73	1.4
NV72	Light Gray	173	59	73	73	1.2

Spartech products are proudly manufactured within the United States of America.

11650 Lakeside Crossing Ct., Maryland Heights, MO, 63146 • 800-677-4338 • **www.spartech.com**

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