Automotive Film Performance Specifications

Product Name	% Total Solar Energy			% Visible Light			U Factor		UV Rejection	Shading Coefficient	Solar Heat Gain Coefficient	Total Solar Energy Rejection
	Transmitted	Reflected	Absorbed	Transmitted	Reflected	Glare Reduction	Median	Design				
Onyx Series - High Performance												
Onyx 5 PS SR	27%	7%	66%	5%	5%	94%	1.05	1.09	99%	0.51	0.44	57%
Onyx 20 PS SR	27%	8%	65%	15%	5%	83%	1.06	1.10	99%	0.52	0.45	55%
Onyx 35 PS SR	36%	9%	55%	32%	7%	64%	1.09	1.13	99%	0.59	0.51	49%
Onyx 55 PS SR	43%	11%	46%	44%	9%	50%	1.09	1.13	99%	0.64	0.56	44%
Charcool Series - Non-Reflective												
Charcool 5 PS SR	41%	7%	52%	7%	5%	92%	1.06	1.12	99%	0.64	0.56	45%
Charcool 20 PS SR	45%	6%	49%	17%	5%	81%	1.10	1.14	99%	0.67	0.58	42%
Charcool 35 PS SR	48%	6%	46%	35%	6%	60%	1.10	1.14	99%	0.69	0.60	40%
Charcool 42 PS SR	66%	7%	27%	41%	6%	54%	1.04	1.05	99%	0.85	0.73	27%
Charcool 55 PS SR	63%	7%	30%	54%	7%	39%	1.11	1.14	99%	0.82	0.71	29%
Charcool 56 PS SR	69%	8%	24%	53%	7%	41%	1.04	1.05	99%	0.87	0.76	24%
Charcoal Series - Non-Reflective												
Charcoal 5 PS SR	41%	7%	52%	7%	5%	92%	1.06	1.12	99%	0.64	0.56	45%
Charcoal 20 PS SR	45%	6%	49%	17%	5%	81%	1.10	1.14	99%	0.67	0.58	42%
Charcoal 35 PS SR	48%	6%	46%	35%	6%	60%	1.10	1.14	99%	0.69	0.60	40%
Black Pearl HP Series - High Performance												
Black Pearl HP 4 - PS SR	28%	9%	63%	4%	4%	96%	1.01	1.03	99%	0.54	0.47	53%
Black Pearl HP 15 - PS SR	32%	8%	60%	15%	5%	84%	1.02	1.03	99%	0.58	0.50	50%
Black Pearl HP 22 - PS SR	35%	9%	56%	23%	6%	75%	1.01	1.03	99%	0.60	0.52	48%
Black Pearl HP 32 - PS SR	42%	8%	50%	33%	6%	63%	1.03	1.04	99%	0.66	0.57	43%
Black Pearl HP 38 - PS SR	45%	9%	46%	40%	7%	55%	1.03	1.04	99%	0.68	0.59	41%
Black Pearl NR Series - Non-Reflective												
Black Pearl NR 5 - PS SR	46%	6%	48%	4%	4%	95%	1.04	1.05	99%	0.70	0.61	39%
Black Pearl NR 20 - PS SR	50%	6%	44%	19%	5%	79%	1.04	1.05	99%	0.73	0.64	36%
Black Pearl NR 35 - PS SR	60%	6%	34%	37%	5%	59%	1.04	1.05	99%	0.81	0.70	30%
Black Pearl NR 55 - PS SR	67%	6%	26%	57%	6%	37%	1.04	1.05	99%	0.86	0.75	25%
Black Pearl NR 70 - PS SR	71%	7%	22%	69%	7%	23%	1.04	1.05	99%	0.90	0.78	22%

Wincos - Premium Series IR	% Total Solar Energy			% Visible Light			U Factor		UV Rejection	Shading Coefficient	Solar Heat Gain Coefficient	Total Solar Energy Rejection	Infrared Rejection
	Transmitted	Reflected	Absorbed	Transmitted	Reflected	Glare Reduction	Median	Design					
Wincos 10	10%	4%	86%	10%	5%	88%	1.04	1.05	99%	0.43	0.37	63%	91%
Wincos 20	16%	4%	80%	23%	5%	75%	1.04	1.05	99%	0.47	0.41	59%	90%
Wincos 30	20%	4%	76%	33%	5%	63%	1.04	1.05	99%	0.50	0.44	57%	91%
Wincos 45	28%	5%	67%	50%	6%	44%	1.04	1.05	99%	0.56	0.49	51%	88%
Wincos 60	32%	5%	63%	66%	7%	26%	1.04	1.05	99%	0.59	0.51	49%	91%
Wincos 70	37%	5%	58%	75%	7%	17%	1.04	1.05	99%	0.63	0.55	45%	89%
Wincos 90	70%	8%	23%	89%	9%	1%	1.00	1.02	99%	0.88	0.77	23%	53%

* IR Rejection is tested in the IR range of 780 to 2500 nanometers.

Reported values are typical properties and should not be used as a specification. Since only the user is aware of the specific conditions in which the product is to be used, it is the user's responsibility to determine whether the product is suitable for that intended use. If the specific conditions of use are critically dependent on any of the properties of the product, or if you need further information, contact Madico or your local Madico Window Film dealer. Wincos is manufactured by Lintec and distributed through Madico North America.

Solar Optical Properties Glossary

Total Solar Energy: all the energy in the solar spectrum that reaches us on the earth's surface. This includes UVA and UVB, Visible light, and Infrared energy up to roughly 2500nm.

Transmitted: the amount of total solar energy that passes through the glass, into the car.

Reflected: the amount of total solar energy that is reflected off of the glass and directed back outside. This energy does not come into the car.

Absorbed: the amount of total solar energy that is absorbed into the glass. This heats up the glass, making it hotter to the touch, and re-radiates a small amount of heat back into the car. The majority of absorbed energy is kept out of the car though.

Visible Light: the portion of the solar spectrum containing visible light we can see, from roughly 380nm up to 780nm, contains all the colors of the spectrum.

Transmitted: the amount of visible light that passes through the glass, into the car. This is how light or dark the film is.

Reflected Exterior: the amount of visible light that is reflected off the exterior surface of the window. This is seen when standing outside the car. A higher reflectance value means the window looks more like a mirror from the outside.

Glare Reduction: the reduction in visible light transmitted compared to clear unfilmed glass.

U Factor: heat transfer due to temperature differences outside and inside. Represents the amount of heat passing through 1 sq ft of glass in 1 hour for every 1 degree temperature difference between the outside and inside. A lower value means less heat passes through, and this is generally of interest for keeping heat inside in cold climates.

Median: refers to the part of the U Factor/U Value chart that applies to "mild winter" conditions.

Design: refers to the part of the U Factor/U Value chart that applies to "severe winter" conditions.

Ultraviolet Light Rejection: the amount of UV energy blocked by the film, either by reflecting or absorbing it. This energy does not enter the car.

Shading Coefficient: the ratio of heat passing through a filmed window to heat passing through clear unfilmed glass. A lower number means better heat rejection.

Solar Heat Gain Coefficient: similar to the shading coefficient, except this value also takes into account energy that is re-radiated back into the car from the glass heating up due to increased absorption. Again, a lower number means better heat rejection.

Total Solar Energy Rejection: the total amount of solar energy that is kept out of the car. Although not accurate, this is commonly referred to as heat rejection.

Infrared Rejection: the amount of infrared (IR) energy that is blocked by the film, either by reflecting or absorbing. This value is for the whole IR region of the solar spectrum, roughly 780nm up to 2500nm.