

# WINDOW FILM PERFORMANCE DATA | Architectural: North America



## Solar Control Window Film

	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorbance	% Visible Light Transmittance	% Visible Reflectance (exterior)	% Visible Reflectance (interior)	Winter U-value	Shading Coefficient	% Ultraviolet Ray Protection (wavelengths 300-380nm)	Emissivity	Solar Heat Gain Coefficient	% Total Solar Energy Rejected	Light-to-Solar Heat Gain Ratio (LSG)	% Summer Solar Heat Gain Reduction	% Winter Heat Loss Reduction	% Glare Reduction
<b>Clear Glass</b>	83	8	9	90	8	8	1.03	1.00	29	0.84	0.86	14	1.05	0	0	0
<b>Reflective Series</b>																
Reflective films feature reflectance on both interiors and exteriors for superior reduction in summer cooling costs and heat retention in winter. Providing a high level of glare and heat control, they are scratch-resistant, shield 99% of ultraviolet rays, and provide excellent heat rejection.																
RN07G SR CDF (One-Way Mirror)	7	57	36	6	61	14	0.88	0.19	99	0.54	0.16	84	0.38	81	15	93
R15B SR CDF (Bronze)	8	39	53	8	20	62	0.89	0.25	99	0.62	0.22	78	0.36	74	14	91
R15BL SR PS (Blue)	9	42	49	9	27	62	0.93	0.25	>99	0.63	0.22	78	0.41	74	11	90
R15G SR CDF (Gray)	7	36	57	6	13	62	0.92	0.26	99	0.62	0.23	77	0.26	73	12	93
R15GO SR PS (Gold)	10	53	37	13	52	63	0.92	0.23	>99	0.62	0.20	80	0.65	77	12	86
R20 SR CDF (Silver)	11	57	32	15	62	63	0.90	0.22	>99	0.58	0.20	80	0.75	77	13	83
R35 SR CDF (Silver)	21	45	34	28	47	46	0.91	0.35	>99	0.61	0.30	70	0.93	65	13	69
R50 SR CDF (Silver)	39	27	34	49	26	25	0.95	0.55	99	0.67	0.47	53	1.04	45	9	46
<b>Dual-Reflective Series</b>																
Dual-Reflective films are highly reflective on the exterior; lower on the interior, which helps provide clear day and night views. Traditionally specified on commercial buildings, Dual-Reflective films are also popular for sunbelt residential applications. They are scratch-resistant, shield 99% of ultraviolet rays, and provide excellent heat rejection.																
DR15 SR CDF (Warm Gray)	18	38	44	17	37	13	0.92	0.34	99	0.62	0.30	70	0.57	65	12	81
DRN25 SR CDF (Warm Gray)	23	31	46	22	30	12	0.92	0.39	99	0.62	0.35	65	0.63	59	12	76
DRN35 SR CDF (Warm Gray)	33	22	45	35	21	13	0.95	0.52	99	0.67	0.46	54	0.76	47	9	61
<b>Low-E</b>																
Low-E film provides superior energy conservation by reducing winter heat loss through windows. It is scratch-resistant, shields 99% of ultraviolet rays, reduces glare, and has the highest heat rejection performance of all LLumar films. It is suitable for commercial and residential applications where summer and winter energy control are major concerns.																
E1220 SR CDF (Silver)	9	57	34	12	62	65	0.78	0.19	>99	0.38	0.17	83	0.71	80	25	87
<b>Deluxe Series</b>																
Deluxe films are specified for commercial buildings where high levels of heat rejection and glare reduction are needed. Deluxe films are ideal for privacy applications and exterior aesthetics. They are scratch-resistant, reduce 99% of ultraviolet rays, and come in gray and bronze.																
DL05G SR CDF (Gray)	14	26	60	7	11	11	0.95	0.35	>99	0.68	0.31	69	0.23	64	9	92
DL15B SR CDF (Bronze)	27	14	59	14	8	8	0.94	0.51	99	0.72	0.44	56	0.32	49	10	84
DL15G SR CDF (Gray)	27	14	59	16	9	8	0.93	0.51	99	0.71	0.44	56	0.36	49	11	82
DL30GN SR PS (Green)	32	18	50	33	14	14	0.99	0.53	>99	0.75	0.48	52	0.69	44	5	63
<b>Neutral Series</b>																
Neutral films reduce glare, provide moderate heat rejection, and are specified where a soft, neutral appearance is desired. These films are made with sputtered technology, creating a film that allows for very uniform visible light transmission. Neutral films are scratch-resistant and shield 99% of ultraviolet rays.																
N1020 SR CDF (Neutral)	21	27	52	23	30	27	1.03	0.42	>99	0.82	0.37	63	0.62	57	1	74
N1040 SR CDF (Neutral)	34	17	49	37	19	16	1.05	0.56	99	0.85	0.49	51	0.76	43	-1	59
N1050 SR CDF (Neutral)	46	12	42	50	14	11	1.07	0.68	99	0.89	0.59	41	0.85	31	-3	44
N1065 SR CDF (Neutral)	64	9	27	69	10	8	1.07	0.83	99	0.90	0.72	28	0.96	16	-3	23
N1020B SR CDF (Bronze)	13	49	38	21	37	35	0.90	0.27	>99	0.59	0.23	77	0.91	73	13	77
N1035B SR CDF (Bronze)	26	37	37	37	26	23	0.92	0.41	99	0.61	0.36	64	1.03	58	12	59
<b>Exterior Series</b>																
Exterior films products are applied to the exterior face of the glazing and provide excellent heat rejection performance.																
NHE20 ER HPR (Neutral)	21	29	50	23	30	26	1.04	0.42	>99	0.86	0.36	64	0.64	58	0	74
NHE35 ER HPR (Neutral)	34	18	48	38	19	16	1.04	0.56	>99	0.86	0.49	51	0.78	43	0	58
RHE20 ER HPR (Silver)	12	63	25	16	62	59	1.04	0.22	>99	0.71	0.20	80	0.80	77	0	82
RHE35 ER HPR (Silver)	21	50	29	29	48	45	1.04	0.35	>99	0.72	0.30	70	0.97	65	0	68
RHE50 ER HPR (Silver)	38	30	32	49	26	24	1.04	0.55	>99	0.79	0.48	52	1.02	44	0	46
THE 80 BL ER (Clear)	41	6	53	78	9	9	1.04	0.66	>99	0.89	0.57	43	1.37	34	0	13
SHE CL ER PS4 (Clear)	82	8	10	89	9	9	1.02	0.97	>99	0.90	0.85	15	1.05	1	2	1
SHE CL ER PS7 (Clear)	81	8	11	89	9	9	1.04	0.97	>99	0.84	0.84	16	1.06	2	0	1
<b>Specialty Series</b>																
AU-85UV SR HPR is the ideal solution for protecting valuables from sun damage. It provides the highest protection against harmful ultraviolet rays without altering glass aesthetics. AIR-80BL SR HPR is used where a combination of extremely low visible reflectance, high light transmission, and substantial reduction in solar infrared transmission is needed.																
AIR80 BL SR HPR (Clear)	43	7	50	79	9	9	1.07	0.67	>99	0.89	0.58	42	1.36	33	-3	12
AIR90 CL SR HPR (Clear)	63	7	30	85	9	9	1.07	0.83	>99	0.89	0.72	28	1.18	16	-3	6
AU85 UV SR HPR (UVCL-Clear)	82	9	9	89	10	10	1.07	0.97	>99	0.90	0.84	16	1.06	2	-3	1



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The solar performance data reported for LLumar architectural window films was captured using the National Fenestration Rating Council's (NFRC) standard guidelines for window film solar performance measurement as measured on single pane, 1/8 inch (3mm), clear glass. Reported values are taken from representative product samples and are subject to normal manufacturing variances. Actual performance will vary based on a number of factors, including glass type and properties. © 2018 Eastman Performance Films, LLC. Product brands referenced herein with a ™ or ® symbol are trademarks of Eastman Chemical Company or its subsidiaries. All other trademarks are the property of their respective owners. Printed in U.S.A. (01/18) L2278