

LEXAN™ THERMOCLEAR™ POLYCARBONATE SHEET

PRODUCT DATASHEET

DESCRIPTION

LEXAN™ THERMOCLEAR™ sheet grades are members of the LEXAN THERMOCLEAR sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from LEXAN resin. The complete range offers remarkable impact strength, high light transmission, light weight, long term weather resistance and, due to the multi-wall construction, outstanding thermal insulation properties and is available with 1 or 2 sides UV protection. LEXAN THERMOCLEAR sheet grades are available in colors: Clear, Opal White, Bronze, Solar Control IR Green and Metallic.

TYPICAL PROPERTY VALUES

GRADE 1UV / 2UV / 1UV1DG COLOR	GAUGE IN/MM	Weight lb/ft ² kg/m ²	SOUND RED. VALUE † (DB)	U-Value‡ BTU/hr ft ² °F W/m ² K	Impact Test¶ Gardner	LT* D65 %LT	DST# %DST	TST# %TST	SHGC #	LSGR #	SC#
LTC2R6/LTT2R6/LD20613											
Clear	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	82	76	82	0.82	1.00	0.94
White	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	20	31	35	0.35	0.57	0.40
Opal	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	40	49	53	0.53	0.75	0.61
Bronze	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	52	54	62	0.62	0.84	0.71
IR-Green	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	66	47	60	0.60	1.10	0.69
Metallic	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	16	15	34	0.34	0.47	0.39
Softlite	0.236 / 6	0.266 / 1.3	17	0.627 / 3.56	>72	79	73	77	0.77	1.03	0.89
LTC2R8/LTT2R8/LD20815											
Clear	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	81	77	82	0.82	0.99	0.94
White	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	27	33	37	0.37	0.73	0.43
Opal	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	47	52	55	0.55	0.85	0.63
Bronze	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	50	43	59	0.59	0.64	0.68
IR-Green	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	65	47	61	0.61	1.07	0.70
Metallic	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	17	17	31	0.31	0.35	0.36
Softlite	0.315 / 8	0.307 / 1.5	18	0.574 / 3.26	>72	79	73	77	0.77	1.03	0.89
LTC3T8/LTT3T8/LD30817											
Clear	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	73		75	0.75	0.97	0.86
White	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	20					
Opal	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	40					
Bronze	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	50					
IR-Green	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	66					
Metallic	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	16					
Softlite	0.315 / 8	0.348 / 1.7	18	0.514 / 2.92	>72	73					
LTC2R10/LTC2R10/LD21017											
Clear	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	81	76	80	0.80	1.01	0.92
White	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	20	39	43	0.43	0.46	0.50
Opal	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	40	56	59	0.59	0.68	0.68
Bronze	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	50	44	55	0.55	0.64	0.63
IR-Green	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	65	45	60	0.60	1.08	0.69
Metallic	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	16	15	29	0.29	0.55	0.33
Softlite	0.394 / 10	0.348 / 1.7	19	0.532 / 3.02	>72	74					
LTC3T10/LTC3T10/LD31017											
Clear	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	74		78	0.78	0.95	0.85
White	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	20					
Opal	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	40					
Bronze	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	50					
IR-Green	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	65					
Metallic	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	16	15	29	0.29	0.55	0.33
Softlite	0.394 / 10	0.348 / 1.7	21	0.472 / 2.68	>72	74					

TYPICAL PROPERTY VALUES♦ (Continued)

GRADE 1UV / 2UV / 1UV1DG COLOR	GAUGE IN/MM	Weight lb/ft ² kg/m ²	SOUND RED. VALUE † (DB)	U-Value‡ BTU/hr ft ² °F W/m ² K	Impact Test¶ Gardner	LT* D65 %LT	DST# %DST	TST# %TST	SHGC #	LSGR#	SC#
LTC3T16/LTT3T16/LD31627											
Clear	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	74	70	78	0.78	0.95	0.90
White	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	20	40	45	0.45	0.44	0.52
Opal	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	40	55	59	0.59	0.68	0.68
Bronze	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	52	38	53	0.53	0.60	0.61
IR-Green	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	55	36	52	0.52	1.06	0.60
Metallic	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	16	15	22	0.22	0.73	0.26
Softlite	0.63 / 16	0.553 / 2.7	21	0.399 / 2.27	>72	72	67	73	0.73	0.99	0.84
LTC3T20/LTT3T20											
Clear	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	70	66	70	0.70	1.00	0.80
White	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	20					
Opal	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	40					
Bronze	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	52					
IR-Green	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	65					
Metallic	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	16					
Softlite	0.787 / 20	0.614 / 3.0	22	0.366 / 2.08	>72	68	64				
LTC3T25/LTT3T25											
Clear	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	70	66	69	0.69	1.01	0.79
White	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	27					
Opal	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	47					
Bronze	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	50					
IR-Green	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	65					
Metallic	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	17					
Softlite	0.987 / 25	0.655 / 3.2	23	0.338 / 1.92	>72	68	64	67	0.67	1.01	0.77

♦ These property values have been derived from LEXAN™ resin data for the material used to produce this sheet product.

† Sound reduction value based on SABIC calculated values according DIN 52210-75

‡ U-values based on SABIC calculated values according ISO 10077 (EN673)

¶ Impact test using Gardner Impact method ASTM D4226, D5420, D5628, A2LA Accredited.

* LT (Light Transmission) and TST (Total Solar Transmission) measurements according ISO 9050 (EN 410) on 600x600 mm samples.

TST (Total Solar Transmission) divided by 100 equals Solar Heat Gain Coefficient (SHGC) or g-value.

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Color number reference table:

COLOR	COLOR NUMBER
Clear	112
Opal (40%LT)	825074
White (20%LT)	825075
Bronze	5109
IR-Green	GN8B038T
Metallic	GY6A744M
Softlite	SOFTL

DEFINITIONS

SOLAR TRANSMISSION

Transparent grades of LEXAN THERMOCLEAR have excellent light transmission. Although LEXAN THERMOCLEAR has less solar transmission versus traditional glass, we advise for buildings in hot climates or facing south, LEXAN THERMOCLEAR in IR version (absorbing infra-red) which will reduce the solar transmission substantially up to 70%.

UV RESISTANCE

Despite transmitting visible light very well, LEXAN THERMOCLEAR sheet is almost opaque to radiation in the UV and far infra-red region. This useful shielding property can prevent discoloration of sensitive materials such as fabrics or other organic materials placed under or behind LEXAN THERMOCLEAR sheet glazing in, for example, a factory warehouse, museum or shopping center. The complete LEXAN THERMOCLEAR sheet range features a proprietary two sides surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight. It has excellent resistance to outdoor weathering.

WARRANTY

SABIC offers a Ten (10) Year Limited Written Warranty on LEXAN THERMOCLEAR sheet covering discoloration, loss of light transmission and loss of strength due to weathering. For detailed information, please contact your local SABIC Service Center or authorized distributor.

THERMAL INSULATION

The multi-wall structure of LEXAN THERMOCLEAR sheet offers significant advantages where thermal insulation is a major consideration. The hollow form provides excellent insulation characteristics with heat losses significantly lower than mono-walls glazing materials.

FIRE TEST PERFORMANCE

LEXAN THERMOCLEAR sheet has good fire behavior characteristics, with a CC1 and Class A rating according to ASTM D635 and E84 testing respectively. More detailed information is available from your local SABIC service Center or authorized distributor.

SOUND INSULATION

The sound insulation characteristics of a material are largely pre-determined by its stiffness, mass and physical construction. According to DIN 52210-75, the maximum obtainable sound is 21dB.

IMPACT STRENGTH

LEXAN THERMOCLEAR sheet has outstanding impact performance over a wide temperature range, -40°F to 248°F , (-40°C to 120°C) and also after prolonged outdoor exposure.

HAIL RESISTANCE

As roofing material LEXAN THERMOCLEAR sheet is subjected to the extremes of weather; like storms, hail, wind, snowfall and ice formation. Under these conditions, the product is virtually unbreakable and is able to accommodate the subsequent temperature change to sunny conditions without breaking or buckling. It should be noted that when glass and acrylic are tested their failure characteristics are typical brittle, whilst LEXAN THERMOCLEAR sheet shows a ductile deformation one, e.g. small indentations. SABIC offers a Ten Year (10) Limited Written Warranty on LEXAN THERMOCLEAR sheet covering loss of strength or impact due to weathering.

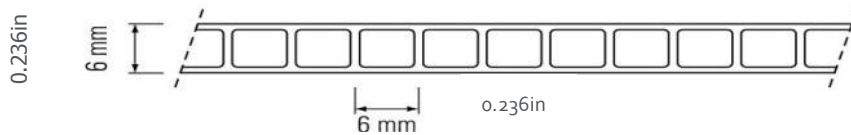
INNER SURFACE: ANTI-DRIP

In addition to the standard UV-grade-color combinations we have other optional sheet configurations available in LEXAN THERMOCLEAR sheet. A unique inside surface treatment was developed to give specific added-value properties to the sheet.

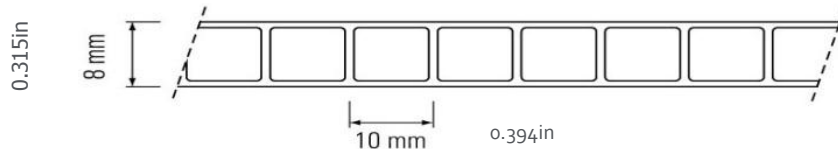
LEXAN THERMOCLEAR Drippgard sheet is suitable for any roof glazing application in which water droplets are unacceptable, such as commercial greenhouses where they could cause crop spoilage. This innovative product has UV protection on the outer surface and a specially developed hydrophilic coating on the inner surface. This coating reduces the formation of condensation droplets by increasing the surface tension of the sheet and decreasing the contact angle. As a consequence, a thin mist of water will form on the inner surface of the sheet, which will not drip and will not affect the excellent light transmission of the material.

STRUCTURES AND NOMENCLATURES

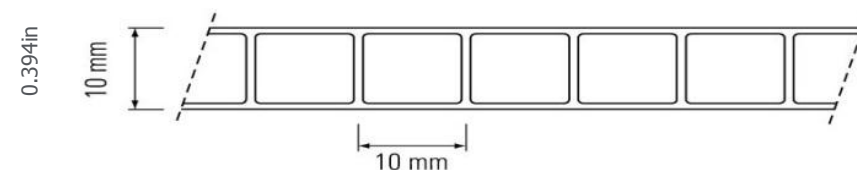
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LTT2R6
LD20613



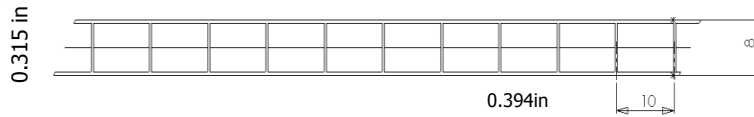
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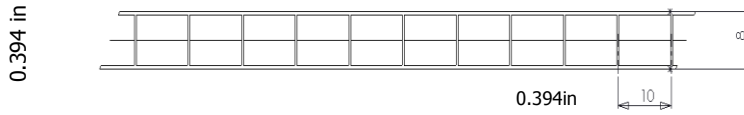
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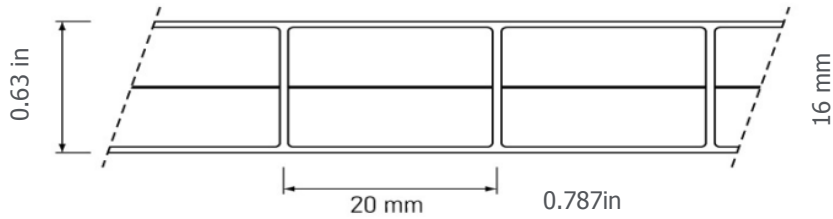
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LTT3T8
LD30817



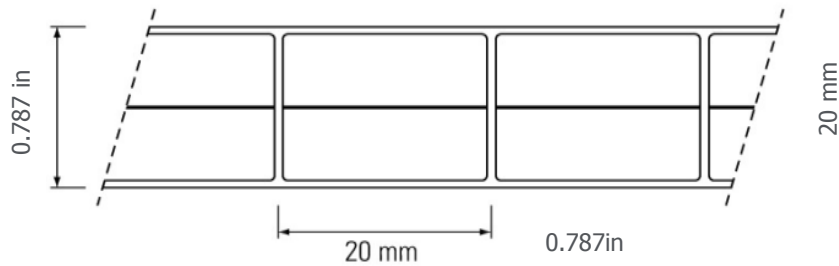
LTC3T10
LTT3T10
LD31017



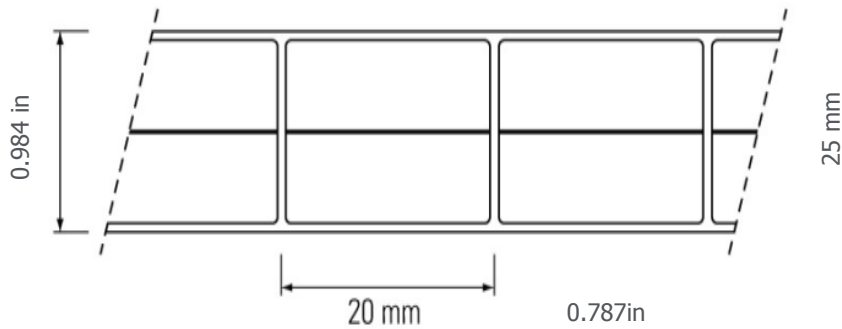
LTC3T16
LTT3T16
LD31627



LTC3T20
LTT3T20



LTC3T25
LTT3T25



TOLERANCES ON DIMENSIONS

GAUGE/WEIGHT	STRUCTURE	WEIGHT	GAUGE	WIDTH	LENGTH	LENGTH
					< 20FT/6M	> 20FT/6M
0.177in 0.205lb/ft ²	2RS	+/- 1%	+/-7%	+/-0.5%	+0.472in	+1.81in
4.5mm 1.0 kg/m ²					+12mm	+30mm
0.236in 0.266 lb/ft ²	2RS	+/- 1%	+/-5%	+/-0.5%	+0.472in	+1.81in
6.0mm 1.3 kg/m ²					+12mm	+30mm
0.315in 0.348 lb/ft ²	2RS/3TS	+/- 1%	+/-5%	+/-0.5%	+0.472in	+1.81in
8.0mm 1.7 kg/m ²					+12mm	+30mm
0.394in 0.409 lb/ft ²	2RS/3TS	+/- 1%	+/-5%	+/-0.5%	+0.472in	+1.81in
16.0mm 2.0 kg/m ²					+12mm	+30mm
0.63in 0.573 lb/ft ²	3TS	+/- 2%	+/-3%	+/-0.5%	+0.472in	+1.81in
16.0mm 2.8 kg/m ²					+12mm	+30mm
0.787in 0.614 lb/ft ²	3TS	+/- 2%	+/-3%	+/-0.5%	+0.472in	+1.81in
20.0mm 3.0 kg/m ²					+12mm	+30mm
0.984in 0.655 lb/ft ²	3TS	+/- 2%	+/-3%	+/-0.5%	+0.472in	+1.81in
25.0mm 3.2 kg/m ²					+12mm	+30mm

GENERAL GUIDELINES

STORAGE

LEXAN THERMOCLEAR sheet should be stored and protected against atmospheric influences like sun, rain, etc. Care should be exercised when handling and transporting LEXAN THERMOCLEAR sheet in order to prevent scratches on the panel surface and damage to the panel edges.

CLEANING

SABIC recommends the following cleaning agent SUMALIGHT D12 from Johnson Diversey Lever (check Technical manual for further details). Small surfaces can be cleaned with lukewarm water, using a soft sponge and a solution of mild soap. Do not use any corrosive materials or chemicals to clean LEXAN THERMOCLEAR sheet s. Using any other cleaning agents than the recommended one must have the prior approval of SABIC in order to validate the LEXAN THERMOCLEAR sheet warranty.

CHEMICAL RESISTANCE

Neoprene, EPT or EPDM rubbers with an approximate Shore Hardness of A65 are recommended. When using glazing compounds it is essential that the sealant system accepts a certain amount of movement to allow for thermal expansion, without loss of adhesion to the frame or sheet. Silicone sealants are generally recommended for use with LEXAN THERMOCLEAR sheet. It is strongly advised when using sealing to check compatibility before use.

SAWING

LEXAN THERMOCLEAR sheet can be cut easily and accurately with standard workshop equipment. This includes common circular, hand and hacksaws. Saw dust should be blown out of the channels using clean compressed air. Circular saw blade should be fine-toothed panel blades. When hand or power hacksaws are used, the sheet should be clamped to the worktable to avoid undesirable vibration.

THERMAL EXPANSION ALLOWANCE

Since LEXAN THERMOCLEAR sheet has a greater linear thermal expansion coefficient than that of traditional glazing materials, care should be taken to allow for free expansion of the sheet to prevent bowing and internal thermal stress. Thermal expansion allowance must be made for both the length and width of the LEXAN THERMOCLEAR sheet. In general, thermal expansion of the sheet is approximately 0.036in per linear foot or 3mm per linear meter.

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