

## Description

Lexan Thermoclear sheet is a structured sheet made of polycarbonate resin. The sheet combines the properties like high thermal insulation and light transmission, low weight with high stiffness and impact resistance. It can be easily cold curved or cut to size. The sheet side bearing UV protection layer should always be the side facing the sun. Lexan Thermoclear sheet can be an excellent candidate for heat-insulating glazing at conservatories, greenhouses, skylights, as well as swimming pool covers, industrial roofing and glazing.

## Typical Property Values ♦

Grade-Color	Gauge (mm)	Weight (kg/m <sup>2</sup> )	Sound Red. value <sup>‡</sup> (dB)	U-Value <sup>‡</sup> (W/m <sup>2</sup> K)	Impact Test <sup>¶</sup> Gardner	LT* D65 (%LT)	DST <sup>#</sup> (%DST)	TST <sup>#</sup> (%TST)	SHGC <sup>#</sup>	LSGR <sup>#</sup>	SC <sup>#</sup>
<b>LTC2R45</b>											
Clear	4.5	1.0	16	3.86	>72	83	77	83	0.83	1.00	0.95
Opal White	4.5	1.0	16	3.86	>72						
Bronze	4.5	1.0	16	3.86	>72						
IR-Green	4.5	1.0	16	3.86	>72	67	49	61	0.61	1.12	0.71
Metallic	4.5	1.0	16	3.86	>72						
<b>LTC2R6</b>											
Clear	6	1.3	17	3.56	>72	82	76	82	0.82	1.00	0.94
Opal White	6	1.3	17	3.56	>72						
Bronze	6	1.3	17	3.56	>72						
IR-Green	6	1.3	17	3.56	>72	66	47	60	0.60	1.10	0.69
Metallic	6	1.3	17	3.56	>72						
<b>LTC2R8</b>											
Clear	8	1.7	18	3.26	>72	81	77	82	0.82	0.99	0.94
Opal White	8	1.7	18	3.26	>72						
Bronze	8	1.7	18	3.26	>72						
IR-Green	8	1.7	18	3.26	>72	65	47	61	0.61	1.07	0.70
Metallic	8	1.7	18	3.26	>72						
<b>LTC2R10</b>											
Clear	10	2.0	19	3.02	>72	81	76	80	0.80	1.01	0.92
Opal White	10	2.0	19	3.02	>72						
Bronze	10	2.0	19	3.02	>72						
IR-Green	10	2.0	19	3.02	>72	65	45	60	0.60	1.08	0.69
Metallic	10	2.0	19	3.02	>72						
<b>LTC3T16</b>											
Clear	16	2.8	21	2.27	>72	74	70	78	0.78	0.95	0.90
Opal White	16	2.8	21	2.27	>72						
Bronze	16	2.8	21	2.27	>72						
IR-Green	16	2.8	21	2.27	>72	55	36	52	0.52	1.06	0.60
Metallic	16	2.8	21	2.27	>72						

Color number reference table:

Color	Color number
Clear	112
Opal White (40%LT)	825074
Opal White (20%LT)	825075
Bronze	5109
IR-Green	GN8B038T
Metallic	GY6A744M

♦ These property values have been derived from Lexan\* resin data for the material used to produce this sheet product

‡ Sound reduction values based on SABIC Innovative Plastics calculated values according DIN 52210-75

‡ U-values based on SABIC Innovative Plastics 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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Lexan\* Thermoclear\*

## Definitions

**Light Transmission D65 (% LT):**

Percentage of the incident visible light that passes through the sheet.

**Direct Solar Transmission (%DST):**

Percentage of incident solar radiation that passes directly through the sheet.

**Total Solar Transmission (%TST):**

The percentage of incident Solar radiation transmitted by the sheet which includes the direct Solar Transmission plus the part of the Solar Absorption reradiated inward.

**Solar Heat Gain Coefficient (SHGC):**

or g-value is the total solar energy that enters the interior of a building, divided by 100.

**Shading Coefficient ( SC):**

The ratio of the total solar radiation transmitted by a given material to that transmitted by normal 3 mm glass, whose light transmission is 87%.  $SC = \%TST/87$ .

**Light to Solar Gain Ratio (LSGR):**

The ratio between total light transmission (LT) and the total solar transmission (TST).

## 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 centre.

The complete Lexan Thermoclear sheet range features a one side surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight. This side must always be installed facing the sun.

## Warranty

SABIC Innovative Plastics 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.

## 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-wall glazing materials.

## Fire Test Performance

Lexan Thermoclear sheet has good fire behavior characteristics. More detailed information is available from your local SABIC Innovative Plastics' Service Center or authorized dealer.

## Impact Strength

Lexan Thermoclear sheet has outstanding impact performance over a wide temperature range, -40°C to 120°C, and also after prolonged outdoor exposure.

## Hail Simulation

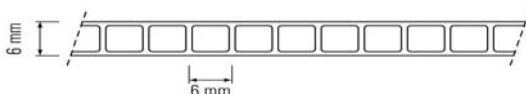
As roofing material Lexan Thermoclear sheet is subjected to the extremes of weather; storms, hail stones, wind, snowfalls and ice formation. Under these conditions, the product is virtually unbreakable and is able to accommodate the subsequent temperature change to sunny conditions without breaking or buckling. It should be noted that when the 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 Innovative Plastics offers a Ten Year (10) Limited Written Warranty on Lexan Thermoclear sheet covering loss of strength or impact due to weathering.

## Structures and nomenclatures

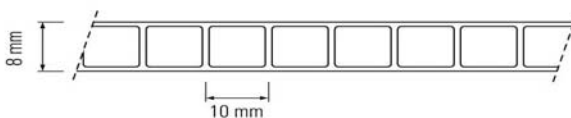
LTC2R45



LTC2R6



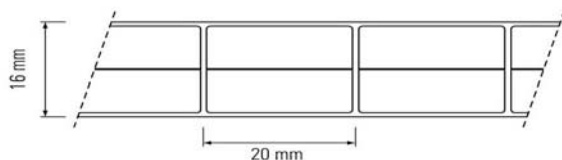
LTC2R8



LTC2R10



LTC3T16



## Tolerances on Dimensions

	Weight	Gauge	Width	Length <6m	Length >6m
<b>4mm 2RS 900gr</b>	+/-2%	+/-7%	+/-0.5%	+12mm	+30mm
<b>4.5mm 2RS 1000gr</b>	+/- 1%	+/-7%	+/-0.5%	+12mm	+30mm
<b>6mm 2RS 1300gr</b>	+/- 1%	+/-5%	+/-0.5%	+12mm	+30mm
<b>8mm 2RS 1700gr</b>	+/- 1%	+/-5%	+/-0.5%	+12mm	+30mm
<b>10mm 2RS 2000gr</b>	+/- 1%	+/-5%	+/-0.5%	+12mm	+30mm
<b>16mm 3TS 2800gr</b>	+/- 2%	+/-3%	+/-0.5%	+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

A periodic cleaning using correct procedure is recommended to prolong service life. For extensive cleaning recommendations please read our Lexan Thermoclear technical manual. Small surfaces; gently wash sheet with a solution of mild soap and lukewarm water, using a soft, grid-free cloth or sponge to loosen any dirt or grime. Do not use any corrosive materials or chemicals to clean Lexan Thermoclear sheets.

### Chemical Resistance

Neoprene, EPT or EPDM rubbers with an approximate Shore Hardness of the 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 before 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 3 mm per linear meter.



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