SARGOM S
articoli gomma e plastica tecnico-industriali
Sargom s.r.l. via G.Bertoli, 15
25050 Rodengo Saiano (Bs)
Tel.030/317741-6810320 - Fax 030/320882
Scheda tecnica (conforme a scheda produttore)
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SABIC Innovative Plastics™

سابك sabic

Lexan* Thermoclear* Plus 9 wall Sheet

Product Datasheet

Description

Lexan* Thermoclear* Plus 9 wall sheet is a unique sheet which combines a high outstanding thermal insulation, high optical properties and an outstanding balance of low weight and high stiffness. Lexan Thermoclear Plus 9 wall sheet is member of the Lexan Thermoclear Plus 2UV sheet range of high quality, multiwall polycarbonate glazing sheets extruded from Lexan resin. Lexan Thermoclear 9 wall sheet has a two sides proprietary UV protected surface, giving superior resistance to outdoor weathering. Lexan Thermoclear Plus 9 wall sheet is available in sheet widths (w): 980, 1050, 1200, 1250 and 2100 mm (gauges 35-50mm 1200mm width only). Lexan Thermoclear Plus 9 wall is available in the standard colors Clear (112), Opal White (WH7A092X) and SC IR Green (GN8B038T).

Typical Property Values ◆

Grade-Color	Gauge (mm)	Weight (kg/m²)	Sound Red. value‡ (dB)	U-Value¥ (W/m² K)	Hail Impact Test¶ (m/sec)	LT• D65 (%LT)	DST• (%DST)	TST• (%TST)	SHGC#	LSGR	SC
LT2UV169X25											
Clear	16	2.5	22	1.77	>21	53	51	53	0.53	1.00	0.61
Opal White	16	2.5	22	1.77	>21	47	46	50	0.50	0.94	0.57
SC IR Green	16	2.5	22	1.77	>21						
LT2UV189X27											
Clear	18	2.7	22	1.69	>21	53	51	53	0.53	1.00	0.61
Opal White	18	2.7	22	1.69	>21						
SC IR Green	18	2.7	22	1.69	>21						
LT2UV209X28											
Clear	20	2.8	23	1.59	>21	52	50	53	0.53	0.98	0.61
Opal White	20	2.8	23	1.59	>21						
SC IR Green	20	2.8	23	1.59	>21						
LT2UV259X30											
Clear	25	3.0	23	1.40	>21	51	49	52	0.52	0.98	0.60
Opal White	25	3.0	23	1.40	>21	44	42	45	0.45	0.98	0.52
SC IR Green	25	3.0	23	1.40	>21						
LT2UV359X40											
Clear	35	4.0	24	1.19	>21	51	49	53	0.53	0.96	0.61
Opal White	35	4.0	24	1.19	>21	44	43	49	0.49	0.90	0.56
SC IR Green	35	4.0	24	1.19	>21	35	22	36	0.36	0.97	0.41
LT2UV409X43											
Clear	40	4.3	25	1.10	>21	51	49	52	0.52	0.98	0.52
Opal White	40	4.3	25	1.10	>21	43	42	48	0.48	0.90	0.55
SC IR Green	40	4.3	25	1.10	>21	33	20	35	0.35	0.94	0.40
LT2UV459X45											
Clear	45	4.5	26	1.04	>21	50	48	52	0.52	0.96	0.52
Opal White	45	4.5	26	1.04	>21	42	42	47	0.47	0.89	0.54
SC IR Green	45	4.5	26	1.04	>21	33	20	35	0.35	0.94	0.40
LT2UV509X48											
Clear	50	4.8	26	0.99	>21	50	48	52	0.52	0.96	0.52
Opal White	50	4.8	26	0.99	>21	40	40	47	0.47	0.85	0.54
SC IR Green	50	4.8	26	0.9	>21	31	18	34	0.34	0.91	0.39

Color number reference table:

Color	Color number
Clear	112
Opal White	WH7A092X
SC IR Green	GN8B038T

◆ 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 calculated values according DIN 52210-75.
¥ U-values based on Sabic calculated values according ISO 10077 (EN673).
¶ Hail simulation test developed by TNO, the Netherlands, artificial hailstones of 20 mm diameter are shot at the sheet at min. speed of 21 m/sec.
• 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.
◇ Values to be proven after production trials.
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Definitions

Light Transmission D65 (% LT):
Percentage of the incident visible light that passes through an object.

Direct Solar Transmission (%DST):
Percentage of incident solar radiation that passes directly through an object.

Total Solar Transmission (%TST):
The percentage of incident Solar radiation transmitted by an object 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).

Solar Transmission

Lexan Thermoclear Plus 9 wall sheet is essential opaque to all wavelengths below 385 nanometers. This useful shielding property can prevent discoloration of sensitive materials placed under or behind. Solar heat gain within a building is caused by heat input from radiation emitted from the sun. Sunlight entering the building heats the air both directly and through absorption by the framework, furniture, etc. and is released as infrared energy. In combination with the insulation properties of Lexan Thermoclear sheet, this prevents heat escaping faster than it is created causing a temperature increase, the so-called 'greenhouse effect'. The temperature can be controlled by venting, often in combination with special tinted opal white or Lexan Thermoclear SC IR which contains a proprietary additive which selectively absorbs the near infrared region of the light. Lexan Thermoclear is therefore available in many different colors or with IR additives, which both cuts down the brightness of sunlight to a pleasing level and reduces heat build up inside the building. Calculations for solar heat input through glazing are normally based on data published in 'The Institution of Heating and Ventilating Engineers Guide Book'. These calculations are based on clear glass and correction factors or shading coefficients are then applied when alternative glazing materials are used.

UV Resistance

The complete Lexan Thermoclear Plus 9 wall sheet range features a proprietary both sides surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight. Both sides UV protected surfaces offers advantage in economically cutting the sheet in desired shapes, and installation mistakes are minimized since both sheet surfaces may be faced outwards.

Warranty

SABIC Innovative Plastics offers a Ten (10) Year Limited Written Warranty on Lexan Thermoclear Plus 9 wall sheet covering discoloration, loss of light transmission and loss of strength due weathering. See warranty for exact details.

Thermal Insulation

The multi-wall structure of Lexan Thermoclear Plus 9 wall 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. U- or K-value range from 1.77 to 0.99 W/m^2 K.

Fire Test Performance

Lexan Thermoclear Plus 9 wall sheet has good fire performance against many national fire codes dependent on thickness and color; please check with the local sales office for details.

Impact Strength

Lexan Thermoclear Plus 9 wall sheet has outstanding impact performance over a wide temperature range, -40°C to +120°C, and also after prolonged outdoor exposure. As a roof glazing material Lexan Thermoclear Plus 9 wall 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. Please refer to the warranty for details.

Hail Simulation

As roofing material Lexan Thermoclear Plus 9 wall 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 Plus 9 wall sheet shows a ductile deformation one, e.g. small indentations. SABIC Innovative Plastics offers a Ten Year (10) Limited Written Warranty on Lexan Thermoclear Plus 9 wall sheet covering loss of strength or impact due to weathering.

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General Guidelines

Storage

Lexan Thermoclear Plus 9 wall sheet sheet should be stored and protected against atmospheric influences like sun, rain, etc. Care should be exercised when handling and transporting Lexan Thermoclear Plus 9 wall sheet in order to prevent scratches on the panel surface and damage to the panel edges.

Cleaning

Periodic cleaning using correct procedure is recommended to prolong service life. For extensive cleaning recommendations please read our 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 Plus 9 wall 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 Plus 9 wall sheet. It is strongly advised when using sealing to check before compatibility before use.

Sawing

Lexan Thermoclear Plus 9 wall 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 Plus 9 wall 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 Plus 9 wall sheet. In general, thermal expansion of the sheet is approximately 3 mm per linear meter.