



LEXAN™ THERMOCLEAR™
MULTIWALL POLYCARBONATE SHEET
TECHNICAL MANUAL



LEXAN™ RESIN

LEXAN™ resin is a polycarbonate which is a unique engineering thermoplastic that combines a high level of mechanical, optical and thermal properties. The versatility of this material makes it a suitable candidate for many engineering applications. When extruded in sheet form, due to its excellent optical and impact properties, this material can be an excellent candidate for a wide range of glazing applications. SABIC has developed a multiwall polycarbonate sheet portfolio, called LEXAN™ THERMOCLEAR™ sheet, which can provide an outstanding balance of light weight, high impact strength and stiffness, excellent thermal insulation, UV and flame resistance and long-term light transmission for variety of applications.

Typical applications include:

- DIY / Home Construction
- Greenhouses
- Interior Applications
- Large Architectural Projects
- Pool Covers
- Rooflights & Skylights
- Soundwalls
- Storm Protection
- Verandas & Conservatories
- Vertical Glazing
- Wall Cladding

LEXAN™ THERMOCLEAR™ Multiwall Sheet Portfolio

LEXAN™ THERMOCLEAR-PLUS™ sheet (LT2UV)

LEXAN THERMOCLEAR-PLUS Sheet features a unique 2 side proprietary surface treatment designed to protect the Sheet against the degrading effects of ultra-violet radiation in natural sunlight. Available from 4.5 mm thickness, easy to cut and install sheets are treated with proprietary UV protection on both sides to help ensure long-term optical quality and high light transmission against outdoor weathering and minimize installation mistake costs.

LEXAN THERMOCLEAR SUNXP™ sheet (LT2XP)

LEXAN THERMOCLEAR SUNXP sheet offers a unique two side proprietary surface treatment which provides almost total resistance against degradation caused by UV radiation in sunlight. The LEXAN THERMOCLEAR SUNXP sheet range offer a 15 Year Limited Written Warranty against discoloration, loss of light transmission and/or loss of strength due to weathering.

PRODUCT AVAILABILITY

LEXAN THERMOCLEAR Dripgard sheet (LTD)

LEXAN THERMOCLEAR Dripgard sheet features a specially developed coating on the inner surface which reduces the formation of condensation droplets. This property is particularly important in helping to prevent crop spoilage in commercial greenhouses, by falling condensation droplets. It also helps prevent reduction of light transmission due to condensation water droplets. It can be an excellent material choice for roof glazing where water drops are unacceptable. For instance: greenhouses/verandas/sunrooms/ swimming pool enclosures/industrial roof glazing.

LEXAN THERMOCLEAR Solar Control IR sheet (2UVIR)

LEXAN THERMOCLEAR Solar Control IR sheet makes use of an innovative nano technology platform of solar energy absorption. The LEXAN THERMOCLEAR Solar Control IR sheets are transparent with a green (GN8B038T) tint, which blocks near-Infrared light but lets in high levels of visible light. LEXAN Solar Control IR multiwall sheet offers: high light transmission combined with low solar transmission. Available in various structures (2/3/5/6/9 walls, RS, TS & X structures), this product comes with UV protection on both sides and can offer long-term weathering resistance and high impact strength.

LEXAN THERMOCLICK™ sheet

LEXAN THERMOCLICK sheet is an X-structured multiwall polycarbonate panel with an interconnecting system which eliminates the need for vertical profiles, thereby saving costs and enhancing aesthetics. It is an excellent candidate to create flush profile-free facades in different colors and effects. Combined with the ease of installation, this product is highly suitable for facades and wall cladding. LEXAN THERMOCLICK sheet has a one side proprietary surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight.

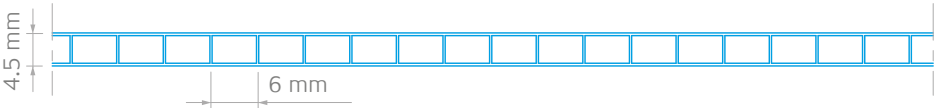
Typical applications include:

- Industrial sidewalls
- Commercial sidewalls greenhouses
- Railway/metro station
- Interior decoration

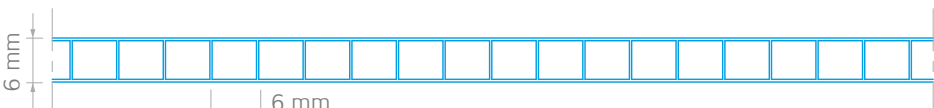


PRODUCT AVAILABILITY

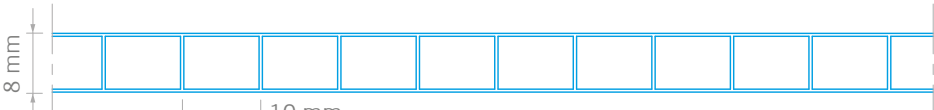
452RS10 structure



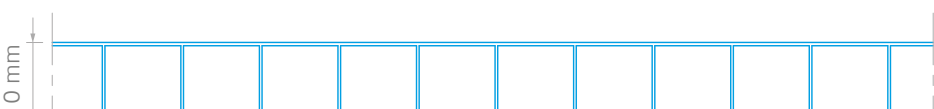
62RS13 structure



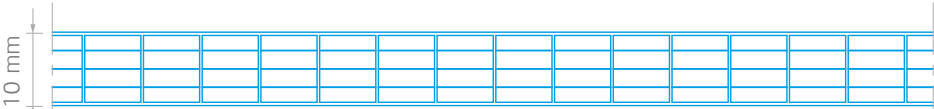
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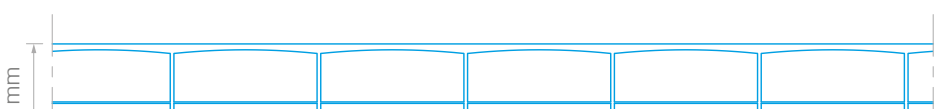
102RS17 structure



105R175 structure

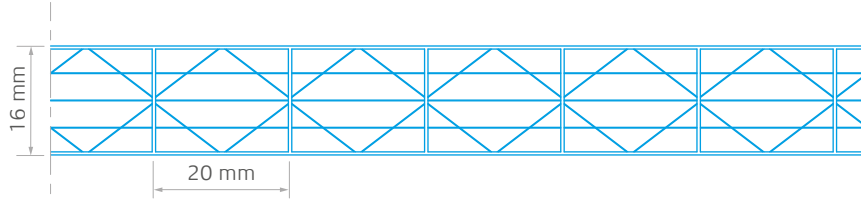


163TS27 structure

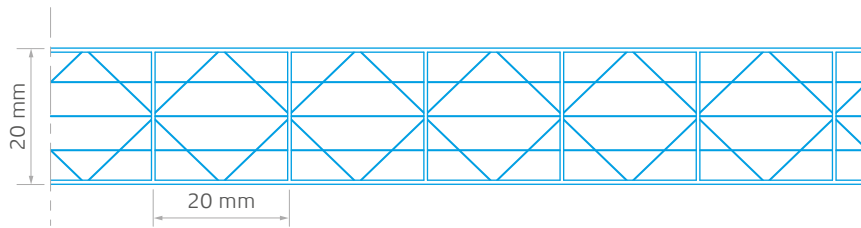


PRODUCT AVAILABILITY

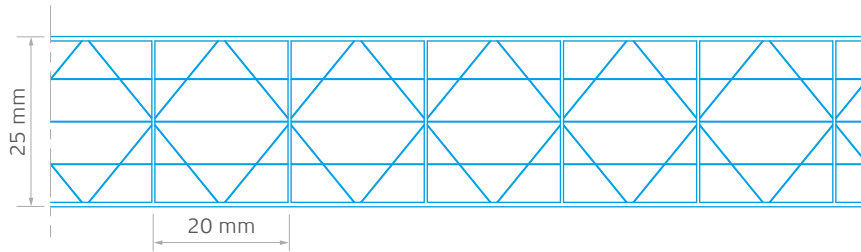
165X26 structure



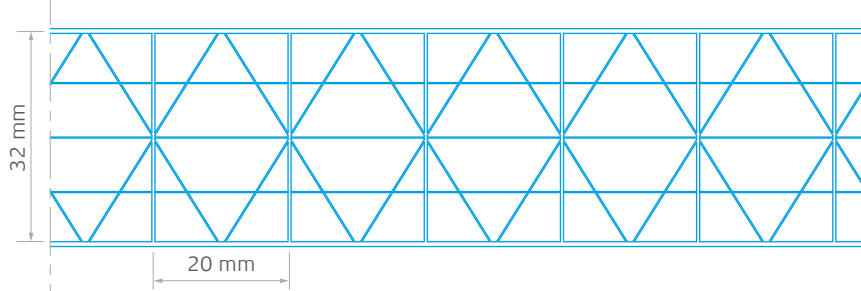
205X32 structure



255X34 structure

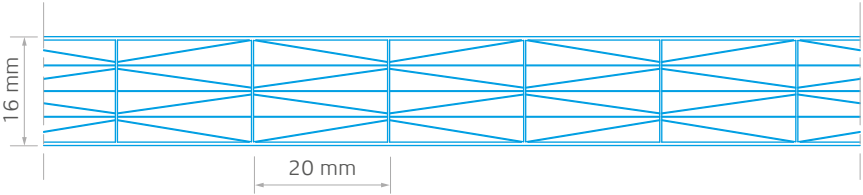


325X38 structure

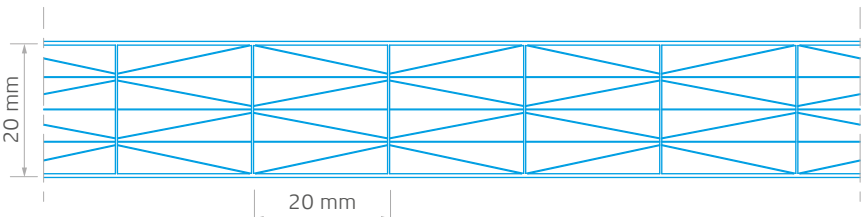


PRODUCT AVAILABILITY

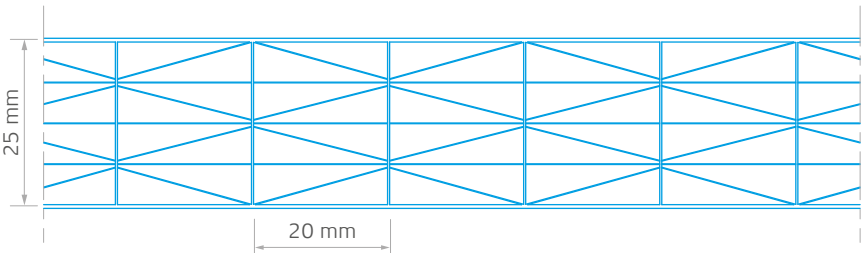
169X25 structure



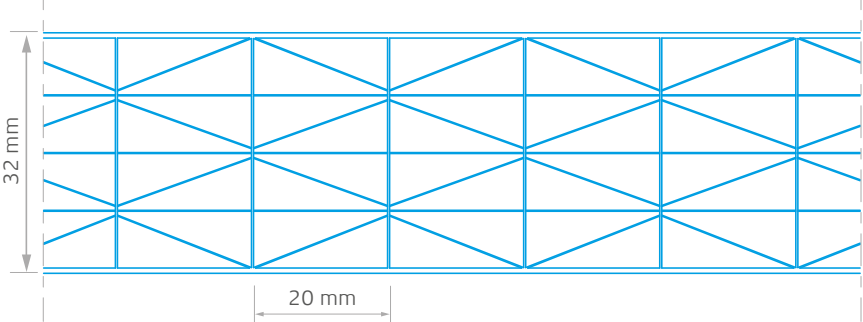
209X28 structure



259X30 structure



329X38 structure



PROPERTY PROFILE

Table 01: LEXAN multiwall sheet Product Selector

Product	Grade name	Structure	Gauge (mm)	Weight (kg/m ²)	U-value # (W/m ² ·K)	Rib distance (mm)	Standard colors
LEXAN THERMOCLEAR LT2UV sheet (10 yr limited written warranty) 2 side UV PLUS coating Clear color = 112 Opal color = WH7A092X Bronze color = 515055	LT2UV452RS10	2-Wall Rectangular	4,5	1,00	3,86	6,30	112-WH7A092X-515055
	LT2UV62RS13	2-Wall Rectangular	6	1,30	3,56	6,30	112-WH7A092X-515055
	LT2UV82RS15	2-Wall Rectangular	8	1,50	3,26	10,70	112-WH7A092X-515055
	LT2UV102RS17	2-Wall Rectangular	10	1,70	3,02	10,70	112-WH7A092X-515055
	LT2UV105R175	5-Wall Rectangular	10	1,75	2,48	8,00	112-WH7A092X-515055
	LT2UV163TS27	3-Wall Tunnel	16	2,70	2,27	20,00	112-WH7A092X-515055
	LT2UV165X26	5-Wall X-structure	16	2,60	1,88	20,00	112-WH7A092X-515055
	LT2UV169X	9-Wall X-structure	16	2,50	1,77	20,00	112-WH7A092X-515055
	LT2UV209X	9-Wall X-structure	20	2,80	1,59	20,00	112-WH7A092X-515055
	LT2UV205X32	5-Wall X-structure	20	3,20	1,69	20,00	112-WH7A092X-515055
	LT2UV259X	9-Wall X-structure	25	3,00	1,40	20,00	112-WH7A092X-515055
	LT2UV255X34	5-Wall X-structure	25	3,40	1,51	20,00	112-WH7A092X-515055
	LT2UV325X38	5-Wall X-structure	32	3,80	1,32	20,00	112-WH7A092X-515055
	LT2UV329X38	5-Wall X-structure	32	3,80	1,2	20,00	112-WH7A092X-515055

Please check with your SABIC representative when non standard combinations are required for alternatives.

- # U-values based on SABIC calculated values according ISO 10077
- ** LT (Light transmission) and TST (Total Solar Transmission) measurements according ISO 9050
TST divided by 100 equals Solar Heat Gain Coefficient (SHGC) or g-value.
- ### 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.

LEXAN multiwall sheet products

Typical property values for:

LEXAN THERMOCLEAR-PLUS sheet	(LT2UV)	10 yr limited written warranty
LEXAN THERMOCLEAR Dripgard sheet	(LTD)	10 yr limited written warranty
LEXAN THERMOCLEAR SUNXP sheet	(LT2XP)	15 yr limited written warranty
LEXAN THERMOCLICK sheet	(LTC)	10 yr limited written warranty

PROPERTY PROFILE

	LT 112 (%)##	TST 112 (%)##	DST 112 (%)	SC 112 (%)###	LT WH7A092X (%)	TST WH7A092X (%)	DSTWH7A092X (%)	SCWH7A092X (%)	Standard width (mm)	Available lengths (mm)
	83	83		0,95	67	70		0,80	1200-2100	3000-13000
	82	82	76	0,94	66	69	63	0,79	1200-2100	3000-13000
	81	82	77	0,94	64	68	62	0,78	1200-2100	3000-13000
	81	80	76	0,92	64	68	62	0,78	1200-2100	3000-13000
	65	65	61	0,75	60	59	58	0,68	1250-2100	3000-13000
	74	78	70	0,90	63	69	60	0,79	980-1200-2100	3000-13000
	59	58		0,67	51	52			1200-2100	3000-13000
	54	54	51	0,62	47	49	45	0,56	980-1200-2095	3000-13000
	53	53	50	0,61	47	50	46	0,57	980-1200-2095	3000-13000
	58	66		0,76	50	51			1200-2100	3000-13000
	51	52	49	0,60	44	47	42	0,54	980-1200-2095	3000-13000
	57	65		0,75	49	54			1200-2100	3000-13000
	55	65	54	0,60	48	48	46	0,55	1200-2100	3000-13000
	51	53	48	0,61	44	48	43	0,55	980-1200-2095	3000-13000

Table 02: Typical properties for LEXAN Polycarbonate Resin

Property Physical	Test method	Unit	Value
Density	ISO 1183	g/cm ³	1,20
Water absorption, 50% RH / 23°C	ISO62	%	0,15
Water absorption, saturation / 23°C	ISO 62	%	0,35
Mechanical			
Tensile stress at yield 50mm/min	ISO 527	MPa	60
Tensile stress at break 50mm/min	ISO 527	MPa	70
Tensile strain at yield 50mm/min	ISO 527	%	6
Tensile strain at break 50mm/min	ISO 527	%	120
Tensile modulus 2mm/min	ISO 527	MPa	2300
Flexural stress at yield 2mm/min	ISO 178	MPa	90
Flexural stress at break 2mm/min	ISO 178	MPa	2300
Hardness H358/30 95	ISO 2039/1	MPa	95
Thermal			
Vicat Softening Temperature, rate B/120	ISO 306	°C	145
HTD/Ae, 1.8 MPa edgew. 120*1*04/sp=100	ISO 75	°C	127
Thermal conductivity	ISO 8302	W/m.°C	0,2
Coeff. of lin. Therm. Exp.extr. 23-80°C	ISO 11359-2	1/°C	7,00 ^{E-05}
Electrical			
Volume resistivity	IEC 60093	Ohm.cm	10 ^{E15}

These property values have been derived from LEXAN resin data for the material used to produce this sheet product. Variation within normal tolerances are possible for various colors. These typical values are not intended for specification purposes. If minimum certifiable properties are required please contact your local SABIC Specialty Film & sheet representative. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties are measured on injection molded samples. All samples are prepared according ISO 294.

PROPERTY PROFILE

LEXAN THERMOCLICK sheet LTC404X4000 (4.0kg/m²)

LEXAN THERMOCLICK sheet 40mm is an impact resistant, energy-saving multiwall sheet with profiled tongue and groove connection, including a groove for double sided tie on the inside. This inter-connecting system eliminates the need for vertical profiles, thereby saving costs and enhancing aesthetics.

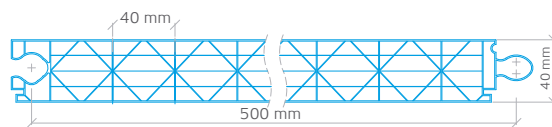


Table 01: LEXAN ThermoClick sheet Systems Product Selector

Product	Grade name	Structure	Gauge (mm)	Weight (kg/m ²)	U-value # (W/m ² K)	Rib distance (mm)	LT 112 (%) ##	LT WH7A092X (%) ##	Available width (mm)	Available lengths (mm)
LEXAN THERMOCLICK LTC sheet Top side UV co-extrusion (10 yr limited written warranty)	LTC404x4000	4-Wall X-structure	40	4,00	1,27	20,00	59	50	500	3000- 13000

Standard colors:

- Clear : 112
- Opal White : WH7A092X
- Blue : BL6C024T
- Purple : VT5C010T
- Green : GN7C018T
- Red : RD7C005T
- Orange : OR6C012T
- Yellow : YW9C007T

Please check with your SABIC representative when non standard combinations are required for alternatives.

For more information concerning our THERMOCLICK please check out our dedicated technical manual.





This LEXAN multiwall Technical Manual only refers to our standard portfolio.
For unlisted requests or questions please contact your local agent at SABIC.

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