

PERSPEX[®] XT

PRODUCT GUIDE

EXTRUDED ACRYLIC WITH OUTSTANDING TRANSPARENCY, INCREASED STRENGTH AND VERSATILE NATURE.

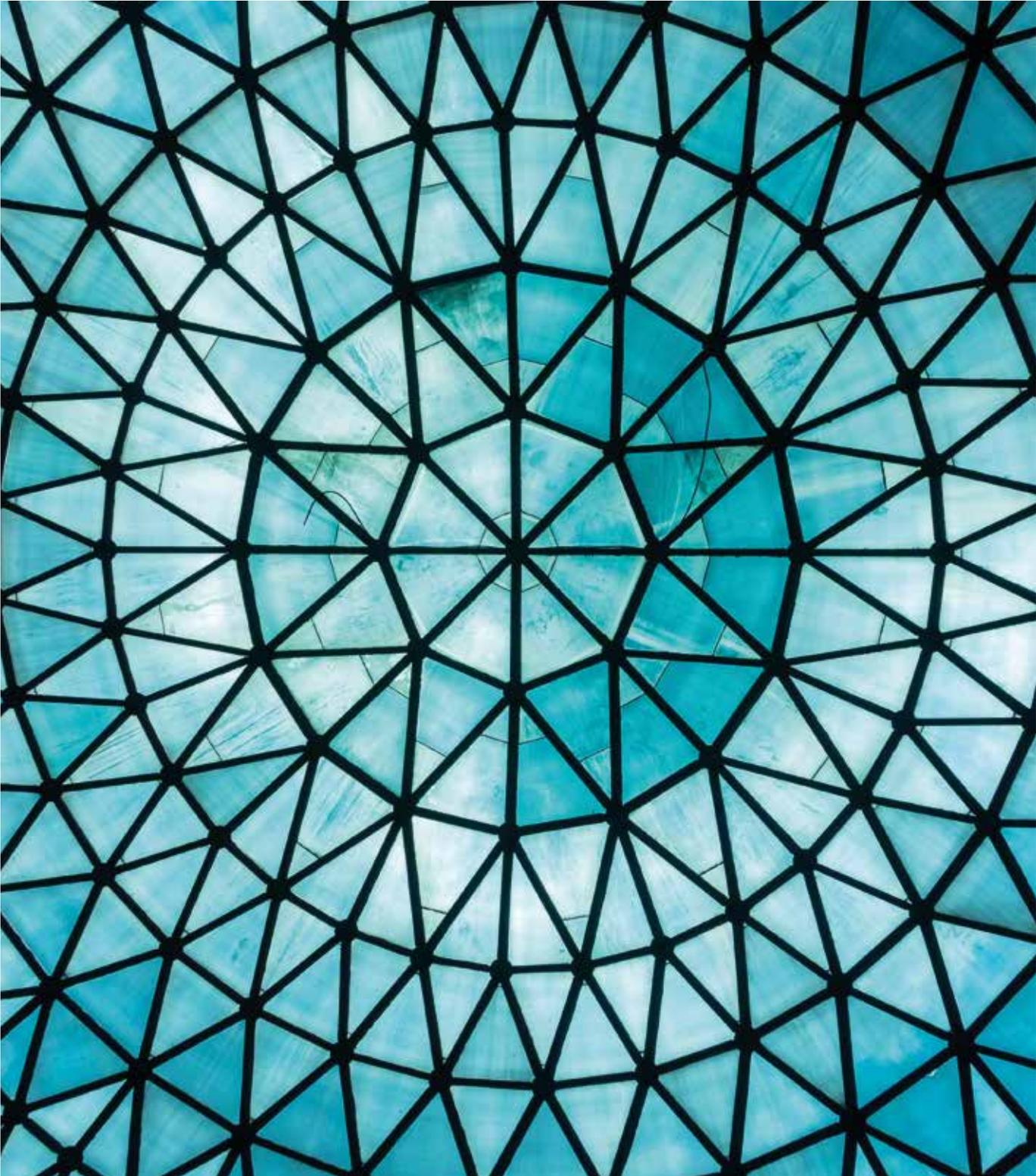




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PERSPEX® XT

PERSPEX® XT is an extruded acrylic sheet with outstanding performance advantages during fabrication, installation and in use.

Available in a range of clear, opals, selected colours, as well as a single-sided anti-reflective clear, PERSPEX® XT sheets offer excellent thickness tolerance and are extremely easy to vacuum form, making it ideal for applications where complex shapes are required. Add to that brilliant transparency, ease of handling, very good weathering and ageing resistance, and it is easy to see how PERSPEX® XT sheets provide a perfect solution to a wide range of applications. It is ideal for use in signage, displays, skylights, windows, doors and any interior or exterior application. PERSPEX® XT is available in thicknesses from 1 to 25 mm.

Sustainable involvement and environmental protection have always been amongst the essential corporate objectives at 3A Composites. The minimisation of risks for man and environment as well as the reduction of environmental pollution through careful and efficient utilisation of resources is part of the corporate philosophy.

Our production site is certified to DIN EN ISO 9001 for quality and to DIN EN ISO 50001 for energy. In addition, ongoing efforts are being made to reduce CO₂ emissions by scaling back energy and water consumption, increasing productivity and avoiding waste.

We are also participating in the programme Operation Clean Sweep® (OCS), which is dedicated to preventing plastic resin loss and to ensuring that this material does not end up in the environment.

PERSPEX® XT sheets are subject to the highest quality standards and stringent monitoring. Our top priority is to ensure that PERSPEX® XT sheets do not contain any hazardous substances. None of the raw materials used to produce PERSPEX® XT sheets contain any heavy metals.

Read more about our commitment to sustainability starting on page 10.

PERSPEX® XT – EXTRUDED ACRYLIC WITH OUTSTANDING TRANSPARENCY, INCREASED STRENGTH AND VERSATILE NATURE.

PERSPEX® XT

EXTRUDED ACRYLIC WITH OUTSTANDING TRANSPARENCY, INCREASED STRENGTH AND VERSATILE NATURE.

CHARACTERISTICS

- Good optical properties
- Brilliant transparency
- Excellent colour rendering
- High-quality surfaces
- Very good weathering and ageing resistance
- Can be used in contact with foodstuff – meets all current European food control legislations
- Does not contain any toxic materials or heavy metals
- High impact grades (PERSPEX® XT IM60 Impact Resistant) for specific applications
- Easy to recycle
- Easy to fabricate
- Fire classification according to EN 13501-1 and UL94 HB for PERSPEX® XT standard grades
- PERSPEX® XT sheets are provided with a 10-year warranty

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Corporate identity
- Shop design | Shop window decoration
- Interior design | Furniture
- Partitions | Cladding
- Lighting | Light boxes
- Glazing
- Food contact approved

PROCESSING

- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Contour milling
- Laser cutting | Water jet cutting
- Sawing | Punching | Gluing | Drilling | Riveting | Screwing
- Thread cutting
- Folding (V-groove)
- Hot bending | Thermoforming
- Engraving | Polishing
- Tempering

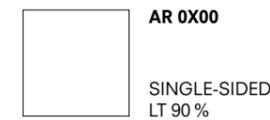


CLEAR TRANSPARENT

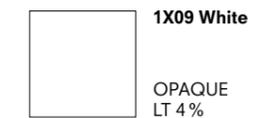
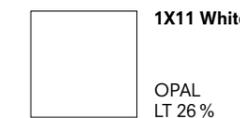
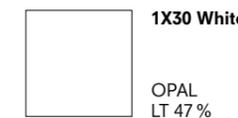
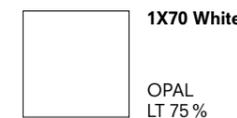


CLEAR ANTI-REFLECTIVE

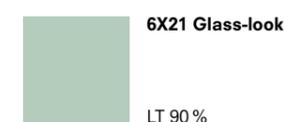
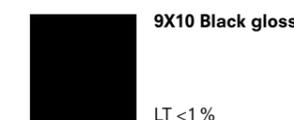
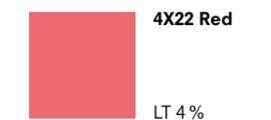
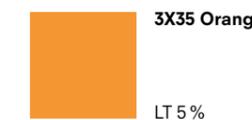
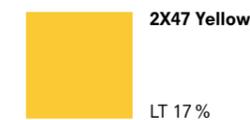
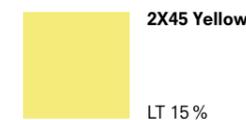
The PERSPEX® XT Clear anti-reflective variant offers a slight matt surface structure for a clear view without interfering light reflections. It is particularly suitable for the areas glazing and decoration.



WHITE OPAL/OPAQUE



COLOURS



OPAQUE = non-transparent , OPAL = semi-transparent

LT = Light transmission (Figures apply to 3 mm sheet thickness only. For the colours 9X52 Bronze and 6X21 Glass-look, the light transmission is constant over the entire thickness range.)

The colours printed may vary from the original. To ensure exact colour matching please ask for a colour sample.

For more details on the processing of PERSPEX® XT, please contact our technical team.

PRODUCTS		PERSPEX® XT	PERSPEX® XT IM60
GENERAL			
Density	ISO 1183	kg/m ³	1190
Water absorption against dry state (24h/23°C – 50x50x4 mm ³)	ISO 62-1	%	0.2
Moulding shrinkage	ISO 294-4	%	0.5 – 0.8
Food contact – GHP	EU 10/2011	–	conform
Biocompatibility	ISO 10993-5	Classification	no cytotoxic
MECHANICAL			
Tensile modulus	ISO 527-2	MPa	3100
Tensile strength	ISO 527-2	MPa	70
Elongation at break	ISO 527-2	%	4
Flexural modulus	ISO 178	MPa	3000
Flexural strength	ISO 178	MPa	110
Impact strength Charpy, unnotched	ISO 179-1/1eU	kJ/m ²	15
Impact strength Charpy, notched	ISO 179-1/1eA	kJ/m ²	2
Ball indentation hardness	ISO 2039-1	MPa	235
OPTICAL			
Light transmission (3 mm)	ISO 13468-2	%	92
Refractive index n _D ²⁰	ISO 489	–	1.492
Haze	ISO 14782	%	< 1
Total solar energy transmission, g value (3 mm)	EN 410	%	86
Gloss value	DIN 67530	%	> 100
THERMAL			
Deflection temperature under load, DTUL (method A / B)	ISO 75-2	°C	95 / 100
VICAT temperature (Method B 50)	ISO 306	°C	105
Coefficient of linear thermal expansion	ISO 11359-2	mm/m x °C	0.07
Service temperature continuous use	–	°C	70
Service temperature at short term use	–	°C	90
Degradation temperature	–	°C	> 280
Forming temperature – air pressure – vacuum	–	°C	140 – 160 160 – 190
Specific heat capacity	ISO 11357-4	J/gK	1.47
Thermal conductivity	ISO 22007-1	W/mK	0.18
Fire resistance	EN 13501-1	Classification	E no burning droplets
	UL94	Classification	HB
ELECTRICAL			
Dielectric strength	IEC 60243-1	kV/mm	30
Electrical strength	IEC 60243-1	kV/mm	10
Volume resistivity	IEC 62631-3-1	Ω m	10 ¹³
Surface resistivity	IEC 62631-3-2	Ω	10 ¹⁵
Relative permittivity (1 MHz)	IEC 60250	–	2.7
Dielectric dissipation factor (1 MHz)	IEC 60250	–	0.02

Note: These technical data of our products are typical ones for PERSPEX® XT. The actually measured values are subject to production variations.

PRODUCTS		PERSPEX® XT SOFT TONE	PERSPEX® XT SBW
GENERAL			
Density	ISO 1183	kg/m ³	1190
Water absorption against dry state (24h/23°C – 50x50x4 mm ³)	ISO 62-1	%	0.2
Moulding shrinkage	ISO 294-4	%	0.5 – 0.8
MECHANISCH			
Tensile modulus	ISO 527-2	MPa	3100
Tensile strength	ISO 527-2	MPa	70
Elongation at break	ISO 527-2	%	4
Flexural modulus	ISO 178	MPa	3000
Flexural strength	ISO 178	MPa	110
Impact strength Charpy, unnotched	ISO 179-1/1eU	kJ/m ²	15
Impact strength Charpy, notched	ISO 179-1/1eA	kJ/m ²	2
OPTICAL			
Light transmission	ISO 13468-2	%	88 (3 mm)
Refractive index n _D ²⁰	ISO 489	–	1.492
Gloss value	DIN 67530	%	< 35
THERMAL			
VICAT temperature (Method B 50)	ISO 306	°C	105
Coefficient of linear thermal expansion	ISO 11359-2	mm/m x °C	0.07
Service temperature continuous use	–	°C	70
Service temperature at short term use	–	°C	90
Degradation temperature	–	°C	> 280
Forming temperature – air pressure – vacuum	–	°C	140 – 160 160 – 190
Specific heat capacity	ISO 11357-4	J/gK	1.47
Thermal conductivity	ISO 22007-1	W/mK	0.19
Fire resistance	UL94	Classification	HB
ELECTRICAL			
Dielectric strength	IEC 60243-1	kV/mm	30
Electrical strength	IEC 60243-1	kV/mm	10
Volume resistivity	IEC 62631-3-1	Ω m	10 ¹³
Surface resistivity	IEC 62631-3-2	Ω	10 ¹⁵
Relative permittivity (1 MHz)	IEC 60250	–	2.7
Dielectric dissipation factor (1 MHz)	IEC 60250	–	0.02
SOUND BARRIER WALL			
Airborne sound insulation DL _R 15 – 25 mm	EN 1793-2:2013	dB	31 – 32 group B3
Absorbable windload 15 – 20mm (2m x 2m) 20 – 25mm (2m x 3m)	EN 1794-1:2011, Annex A	kN/m ²	–
Stone impact resistance	EN 1794-1:2011, Annex C	–	requirements fulfilled
Fire resistance (undergrowth fire)	EN 1794-2:2011, Annex A	Classification	–

Note: These technical data of our products are typical ones for PERSPEX® XT. The actually measured values are subject to production variations.

SUSTAINABILITY

MISSION: TOGETHER. RESPONSIBLE.

Sustainability is at the core of everything we do. Our corporate ecological commitment is summed up by the **MISSION: TOGETHER. RESPONSIBLE.** As we also apply and comply with this mission in regard to our products, we have created a classification system. The five different categories in our **FIVE-DOT-MISSION** system indicate the factors with the greatest impact on sustainability. Our intention is to offer our partners guidance with their purchasing decision-making and to provide a transparent system. A system which focuses on the use of materials, the CO₂ content, the product life cycle and, of course, recycling, a topic of particular relevance for our products. Our FIVE-DOT-MISSION makes an assessment of a product on the basis of five categories and awards points per category, the product is then assigned to one of the five coloured DOTs. By this means we achieve a transparent, quick valuation logic which we can also use to gauge product innovation and improvement at 3A Composites.

THE FIVE-DOT CATEGORIES ARE:

1. BIOBASED CONTENT
Depending on the product, different raw materials are used to manufacture our panels. In this case, we look at the percentage of renewable raw materials used in our products. Our aim is to increase the percentage whenever possible and appropriate.

2. RECYCLED CONTENT
The industry selects recycled raw materials for use in the manufacture of new products which also fulfil requirements such as fire ratings, processing prerequisites and customer expectations in terms of functionality and appearance. This category is where we gauge the proportion of high quality recycled raw material in our products' total material input.

3. FOSSIL CO₂ BOUND IN THE MATERIAL
This category shows the weight of fossil CO₂ embedded in our panels. Differences here are principally due to the raw material type and origin, the density, the composition and the proportion of recycled content.

4. PRODUCT LIFE CYCLE
The plastic sheets and composite panels we produce are used by our customers for a longer period of time. In contrast to products used in the short term, these longer-term alternatives make an active contribution to saving resources. In this category we show our panels' average service life. Material properties result in disparities, so life cycles range from <1 year to even >30 years.

5. RECYCLABILITY
One of the most important aspects of sustainability is contributing to environmental protection by saving valuable raw materials and avoiding waste. Unlike the second category "recycled content", in this assessment category, we show options for recycling the panels after they have been in use. There are already, for instance, established recycling loops for paper and metals. At some production sites, the material can already be returned, so that material for new panels can be created from it. As a company, we came to the conclusion that thermal recycling does not seem sustainable enough, so it is not included in our FIVE-DOT classification. Instead, we are actively working with partner companies to establish a closed-loop, sustainable and future-oriented recycling economy.

As many as 3 points can be achieved in each of the categories presented, totalling a maximum of 15 points. According to the total number of points achieved (1-15), the FIVE-DOT classification is conducted using the following colour gradation.



Transparency is important to us! We will review the product assessment annually to see in which areas the product can be improved. We have set ourselves the goal of achieving the majority of our sales with products which achieve a rating of ≥ 7 points in the FIVE-DOT classification by 2030.

Join us on our sustainable mission!

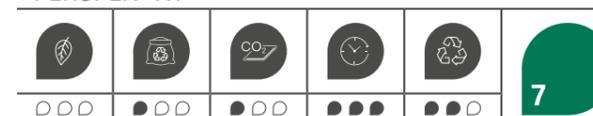


SUSTAINABILITY

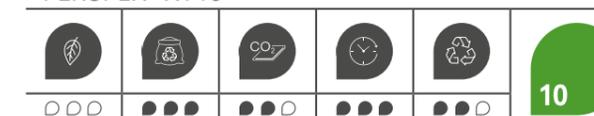
PERSPEX® XT FIVE-DOT-MISSION

PERSPEX® XT extruded acrylic glass sheets, offering brilliant clarity, have been assessed in line with the criteria described above. The products currently achieve a FIVE-DOT classification with a total of 7 respectively 10 points.

PERSPEX® XT



PERSPEX® XT re



RECYCLED CONTENT
 The current production of our PERSPEX® XT acrylic sheets already contains a proportion of recycled PMMA material. The majority of this material is waste from the manufacturing process which, after being sorted into individual types, can be fed back into the production process as regrind to produce new PERSPEX® XT sheets. We aim to continue increasing the proportion of recycled regrind in the product in the future. The recent introduction of PERSPEX® XT re means we are now able to offer a product comprising at least 95% recycled material from PMMA sheet waste.

All raw materials used in our PERSPEX® XT sheets comply with the requirements in the current version of the European Union's Chemicals Regulation (REACH). In particular, PERSPEX® XT sheets are free of any of the substances listed in the current version of the ECHA Candidate List of Substances of Very High Concern (SVHC). PMMA does not contain any toxic substances or heavy metals which may cause environmental damage or pose risks to health.

FOSSIL CO₂ BOUND IN THE MATERIAL
 Owing to the MMA used as a raw material in the manufacturing process, PERSPEX® XT contains fossil carbon. However, thanks to its lower density, PERSPEX® XT contains less fossil carbon per m² than other transparent plastics. As well as the lower density, another factor to note is that, compared with other plastics, the polymer molecule contains a lower percentage of carbon atoms. By using recycled PMMA in the production of PERSPEX® XT re, the amount of new materials required can be significantly reduced. This makes a valuable contribution to lowering CO₂ emissions and avoiding waste.

PRODUCT LIFE CYCLE
 Our PERSPEX® XT acrylic glass sheets are made of extruded PMMA, a very robust, highly transparent and extremely durable material featuring excellent UV stability and resistance to weathering and ageing. We guarantee a service life of ten years for the PERSPEX® XT product family. The sheets are protected against the harmful effects of ultra violet rays and there are no significant changes with regard to optical or mechanical properties. When processed, used, and cared for in an appropriate manner, the life cycle of our sheets can be considerably longer than ten years. An extended service life also leads to saving resources as fewer replacements are required. Our PERSPEX® XT sheets are used in a wide variety of interior and exterior applications where priorities include durability, UV stability and, above all, transparency (92% light transparency for colourless sheets). PERSPEX® XT is a product offering sustainable, long-term use and excellent product performance.

RECYCLABILITY
 PERSPEX® XT sheets can be converted back into their original raw material, methyl methacrylate (MMA), using various recycling processes. Most modern recycling processes for extruded acrylic glass sheets use mechanical processes which, after sorting the material by type and grinding the PMMA sheets or waste material, feed the regrind back into manufacturing processes to produce new sheets. This is already being implemented in the production of our PERSPEX® XT re sheets. In addition to mechanical recycling, the PMMA waste material can also be converted into an MMA liquid monomer using chemical recycling (through depolymerisation). The MMA recovered can then be reused to create, among other things, new PMMA sheets which comply with the highest quality standards. Renowned chemical companies are currently undertaking intensive research into improved depolymerisation technologies to achieve a more efficient and sustainable means of recovering the precious raw material MMA.



PERSPEX® XT re

EXTRUDED ACRYLIC SHEETS MADE FROM RECYCLED PMMA.

PERSPEX® XT re are extruded acrylic sheets comprising at least 95% recycled material from PMMA sheet waste. Available in clear transparent as well as in black and white opaque versions, PERSPEX® XT re comes in a range of different thicknesses and offers the same outstanding properties as extruded acrylic sheets manufactured conventionally. PERSPEX® XT re features brilliant clarity with very good optical properties and excellent colour rendering. It is easy to process and its resistance to weathering and ageing is very good. PERSPEX® XT re is the sustainable solution for a wide range of indoor and outdoor applications. The sheets are used, for instance, in high-class POS/POP displays, trade fair construction and also for shop counters and display cases.

CHARACTERISTICS

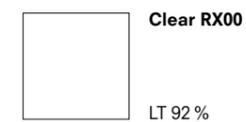
- Made from at least 95% recycled material from PMMA sheet waste
- Lighter than glass
- Good optical properties
- Very good resistance to weathering and ageing
- Easy to process
- For a wide range of interior and exterior applications

PROCESSING

- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Contour milling
- Laser cutting | Water jet cutting
- Sawing | Punching | Gluing
- Drilling | Riveting | Screwing
- Thread cutting
- Folding (V-groove)
- Hot bending | Thermoforming
- Engraving
- Polishing
- Tempering

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Corporate Identity
- Shop design | Shop window decoration
- Interior Design | Furniture
- Partitions | Cladding
- Lighting | Light boxes
- Glazing



LT = Light transmission (Figures apply to 3 mm sheet thickness only.)



PERSPEX® XT IM60 IMPACT RESISTANT

ACRYLIC SHEETS WITH EXCELLENT IMPACT STRENGTH.

PERSPEX® XT IM60 Impact Resistant is the impact-modified product line in the PERSPEX® XT family. It is especially robust, durable and weather-resistant. It features outstanding optical and mechanical properties. PERSPEX® XT IM60 Impact Resistant is the first choice for a wide range of indoor and outdoor applications due to its wide operational range from approximately -20 °C to 65 °C. The impact-modified version is characterised by a much higher resistance to stress cracking, in particular when exposed to chemicals.

PERSPEX® XT IM60 Impact Resistant, like the standard PERSPEX® version, is user-friendly and can be processed using all standard processing methods. In addition, the sheets can be formed at lower temperatures, which results in energy savings.

PERSPEX® XT IM60 Impact Resistant is available in transparent and opal versions.

CHARACTERISTICS

- Excellent impact strength
- Outstanding optical and mechanical properties
- Very good weathering and ageing resistance
- Does not contain any toxic materials or heavy metals
- Easy to handle, fabricate and form
- Fire classification according to UL94 HB
- For special applications

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Shop design | Shop window decoration
- Partitions | Cladding
- Lighting | Light boxes
- Glazing

PROCESSING

- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Contour milling
- Laser cutting | Water jet cutting
- Sawing | Punching | Gluing
- Drilling | Riveting | Screwing
- Thread cutting
- Folding (V-groove)
- Hot bending | Thermoforming
- Engraving | Polishing
- Tempering



LT = Light transmission (Figures apply to 3 mm sheet thickness only.)



PERSPEX® XT SOFT TONE

DOUBLE-SIDED MATT SURFACE.

PERSPEX® XT Soft Tone is an extruded acrylic sheet with the appearance and feel of traditional frosted glass.

Due to its outstanding properties, PERSPEX® XT Soft Tone provides a wide range of application possibilities for building and industrial glazing, decoration, lighting and advertising. Thanks to the double-sided matt surface of the material, images and text are to be seen clearly in all lighting conditions without distracting reflections.

Moreover, the relatively insensitive, easy to clean surface offers protection from scuffs, scratches and fingerprints.

CHARACTERISTICS

- Double-sided matt surface (single-sided matt on request)
- Improves light scatter
- Good optical properties
- Avoids reflective effects
- Stylish, trendy look
- Easy to maintain
- Very good weathering and ageing resistance
- Provided with a 10-year warranty
- Easy to handle, fabricate and form
- Does not contain any toxic materials or heavy metals
- Fire classification according to UL94 HB
- Stable thickness tolerances
- Overlengths available

APPLICATION

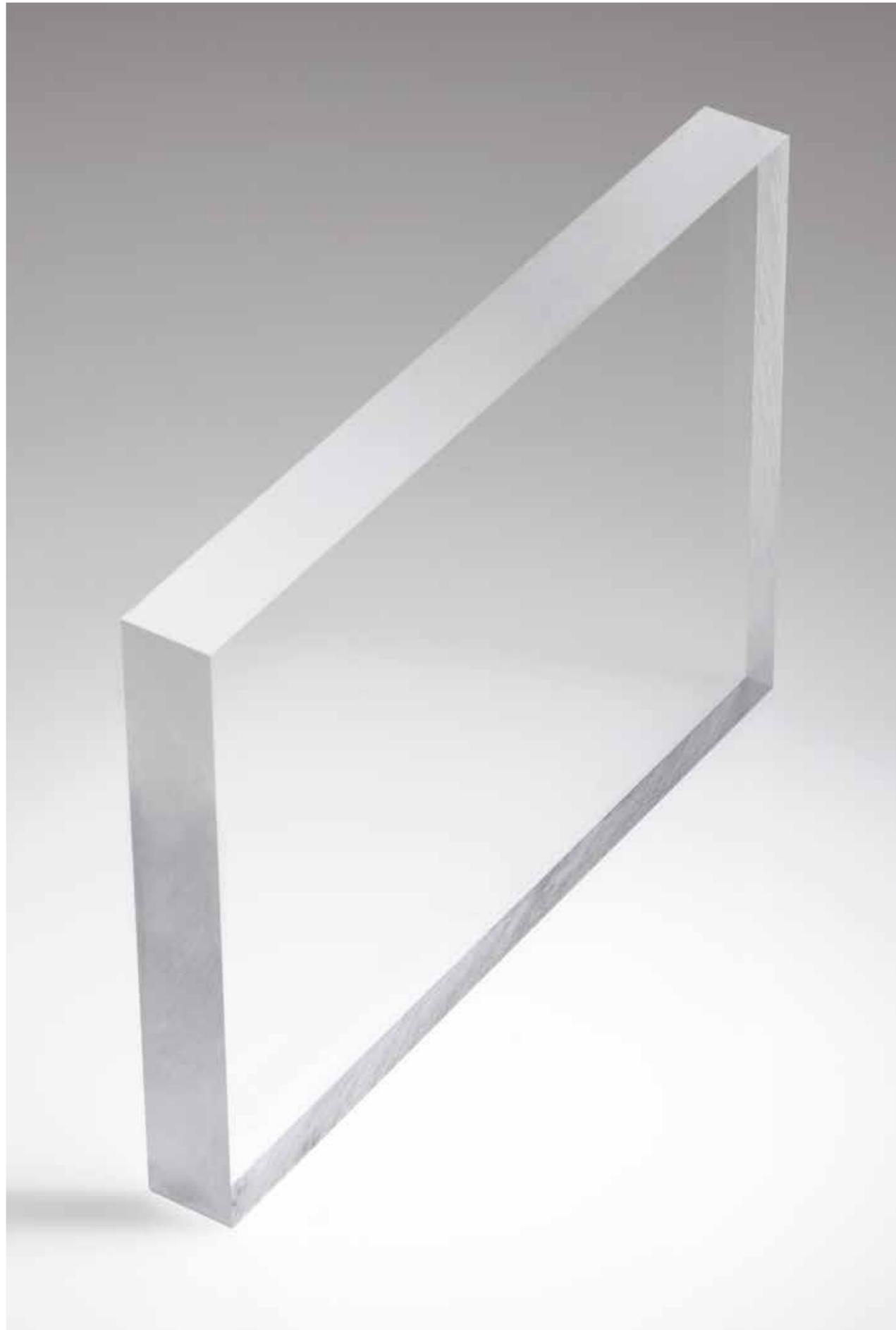
- Signage | Lettering
- Shop design | Shop window decoration
- Partitions | Cladding
- Lighting | Light boxes
- Glazing

PROCESSING

- Digital printing | Screen printing
- Laminating
- Painting | Spray painting | Lacquering
- Contour milling | Laser cutting | Water jet cutting
- Sawing | Punching | Gluing | Drilling | Screwing
- Thread cutting
- Folding (V-groove)
- Hot bending
- Thermoforming
- Engraving | Polishing
- Tempering

	Clear		White
	DOUBLE-SIDED MATT LT 88 %		DOUBLE-SIDED MATT LT 75 %

LT = Light transmission (Figures apply to 3 mm sheet thickness only.)



PERSPEX® XT SBW SOUND BARRIER WALL

TRANSPARENT AND NOISE REDUCING

PERSPEX® XT SBW Sound Barrier Wall is a sound absorbing material used in noise protection equipment on roads. Thanks to the optical properties and the very high transparency, it allows an unhindered view of the surroundings.

The advantages of using PERSPEX® XT SBW in comparison with more traditional materials such as concrete are that it: is much more lightweight (allowing for easier construction); has a better optical view; avoids the creation of solid divisions; and is more aesthetically pleasing due to the range of colours and finishes available.

The PERSPEX® XT SBW Soft Tone version features a matt surface, which is achieved by a special co-extruded coating on one or both sides. The satin matt finish on the surface avoids reflective effects, improves light scatter, and in so doing enhances the sound barrier's function.

PERSPEX® XT SBW and its variations have been tested and approved according to the European standards EN 1793 and EN 1794 and correspond to the German regulatory ZTV-Lsw06. They comply with the requirements for noise insulation, fire performance, stability under wind load and stone cast resistance.

CHARACTERISTICS

- Excellent noise reduction
- High break-resistance
- Good optical properties
- Very high transparency
- Superior UV light resistance and outstanding weather resistance
- Easy to fabricate
- Mechanical stability
- Fire resistance according to DIN EN 1794-2
- Does not contain any toxic materials or heavy metals

PROCESSING

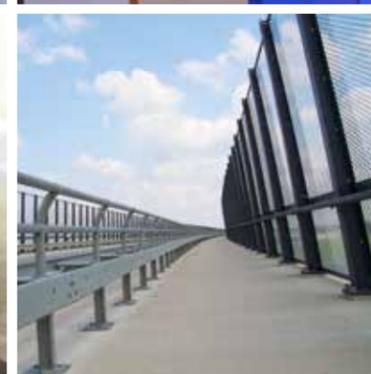
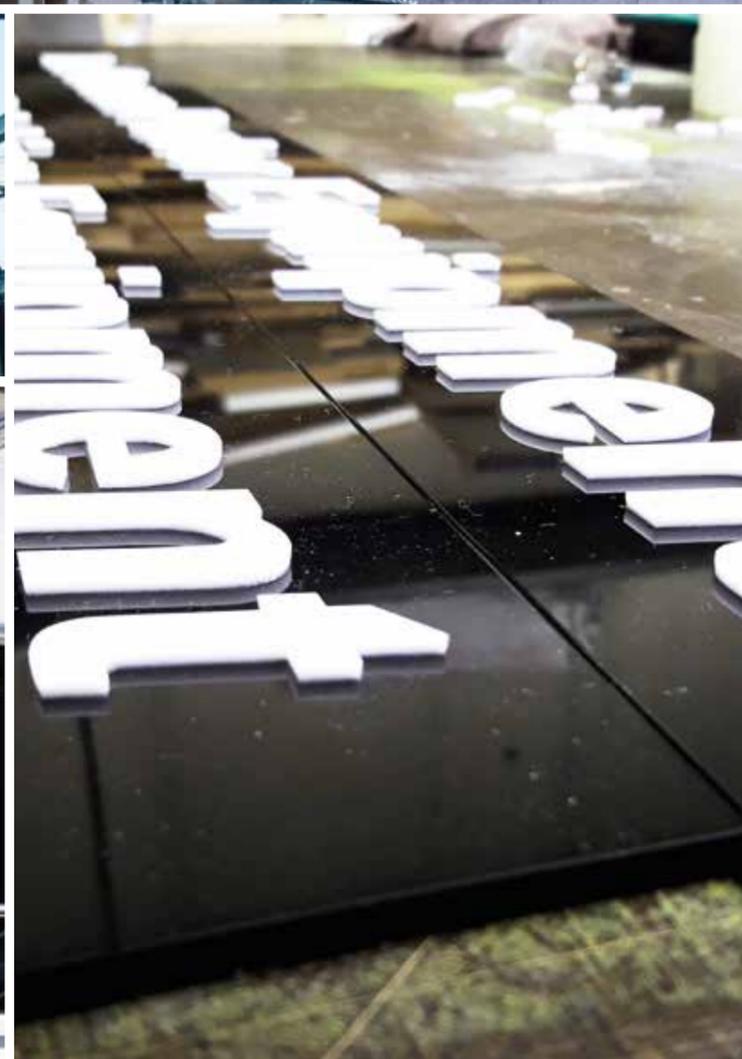
- Digital printing | Screen printing
- Laminating
- Contour milling
- Laser cutting | Water jet cutting
- Sawing | Drilling | Gluing | Thread cutting
- Hot bending
- Polishing | Tempering

APPLICATION

- Sound barrier wall devices
- Large scale glazing

 *0X00 Clear LT 90 %	 *7X14 Blue LT 44 %	 *7X15 Blue LT 50 %	 *6X22 Green LT 83 %
 *6X24 Green LT 67 %	 *6X23 Green LT 56 %	 *5X13 Bronze LT 45 %	 *9X13 Grey LT 7 %

* = Tested and certified in accordance with the requirements of EN 1793 and EN 1794 and approved for use in Sound Barrier Walls.
 LT = Light transmission (Figures apply to 20 mm sheet thickness only.)
 The colours printed may vary from the original. To ensure exact colour matching please ask for a colour sample.



GET INSPIRED:
WWW.DISPLAY.3ACOMPOSITES.COM/INSPIRATION



Perspex International Ltd.
Orchard Mill, Duckworth Street | Darwen BB3 1AT, United Kingdom
www.display.3AComposites.com
A member of 3A Composites